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QUARTERLY

THE CHICAGO MEDICAL SCHOOL

VOLUME 2, NUMBER 2

MARCH, 1942

XUM

Dear Alumnus:

It would have warmed the cockles of your left ventricle, had you, an Alumnus of The Chicago Medical School, been present at the Annual Dinner and Dance sponsored by the Junior Class, at the Beldon-Stratford Hotel on February 21st, 1942. The medical beaux and their belles were resplendent in their evening dress, and the whole affair was one of magnificence.

It was made all the more auspicious by the presence of a considerable number of the members of the Grand Legion of the Chicago Medical School. This Grand Legion is made up of alumni who have contributed to the Endowment Fund, and the adjective "Grand" in this case signifies something more than the quality of their character. The Endowment Fund, like a rolling snowball, is growing in size, and to date, as announced by Dean Sheinin during the festivities, amounts to over $150,000.00.

The Quarterly of The Chicago Medical School is doing its part in helping to keep the ball rolling. Every Alumnus of the school receives his copy of The Quarterly which serves to keep him informed of the activities and progress of our institution.

In order to keep abreast of continued school activity, won't you please send in your annual three dollar subscription for the Quarterly and Alumni Association.

The Business Manager, The Quarterly, 710 South Wolcott Avenue.

QUARTERLY

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THE CHICAGO MEDICAL SCHOOL

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With the war being the topic of prime consideration today, it is only natural that the applicability of every field of endeavor to the ungentle art of combat should assume great importance . . . In this issue, the social, surgical and chemical aspects of medicine have been given due place . . . Information concerning Emergency Surgery is ever pertinent and with a background of many years of surgical experience, here and abroad, Dr. Plzak's article on "Surgical Problems of War" offers a thorough survey of this vital work . . . Philosophical and sociological implications of the peace-to-be are a never-ending discussion but the essence of these problems as it appears to the country's foremost medical historian is found in Dr. Sigerist's paper on "War and Culture" . . . From our own Chemistry Department comes both an instructive and interesting article concerning "Chemistry in War Times." Dr. Roberts ably explains the chemistry and effects of various war gases in relation to medical therapy . . . As members of communities, serving for the present as civilians, our part in defense and its basic meaning to our environmental welfare is discussed by William Schlaes . . . New aspects of the shock phenomenon are always welcome, and as a research worker in the mechanism of shock, Howard Sloan presents recent evidence as regards "Toxic Factors in Shock." . . . With the renewed vigor of enforcement of narcotic statutes, minor drugs have come into prominence as means of addiction. Marihuana, subject to much past discussion, is fully interpreted by Robert Redston and Lawrence Wishnoff, in the light of recent investigations which conclusions do much to dispel misconceptions concerning the actions of this drug . . . Dr. Horvitz presents a summary of epileptic states and in addition adds further aids to a better understanding of the modern-day therapy of the disease . . . The physiologic facts concerning visceral pain, explained by Dr. MacFarland of the Department of Anatomy, shows the mechanisms whose actions can help in the treatment of the Surgical Abdomen . . . In adding ward presentations of Cook County Hospital cases, along with discussions by Dr. Taub, we feel that a better clinical correlation can be attained. This series of cases is related as far as disease grouping is concerned, and as the first in the series, the "Leukemias" are herein considered . . .

THE STAFF OF THE QUARTERLY. Editor in Chief, Jerome S. Tobis; Associate Editors:—A. Harry Barasch, LeRoy P. Levitt, Daniel C. Belinker; Members of Editorial Staff:—Herman Weisberg, Bernard Liebschutz, Edward Flick, Harry Permesly, Eugene Raicus, Verdemae Karr, Sol Nichtern, Howard Sloan, Morton Podolsky, J. Cobb Siegel, Eber Wein, Maurice Sanderson, Victor Slepikas, William Schlaes; Business Manager:—Raphael M. Adelman, D.D.S., M.S.D.; Members of Business Staff:—Eugene Brodsky, Sam Peizer, Roy Hecht, Frank Padour; Advisory Board:—Maxwell P. Borovsky, M.D., Richard G. Roberts, Ph.D., Harry Culhane, M.D., Henry A. Smith, M.D., John C. Evans, D.D., Jay A. Smith, Ph.D.

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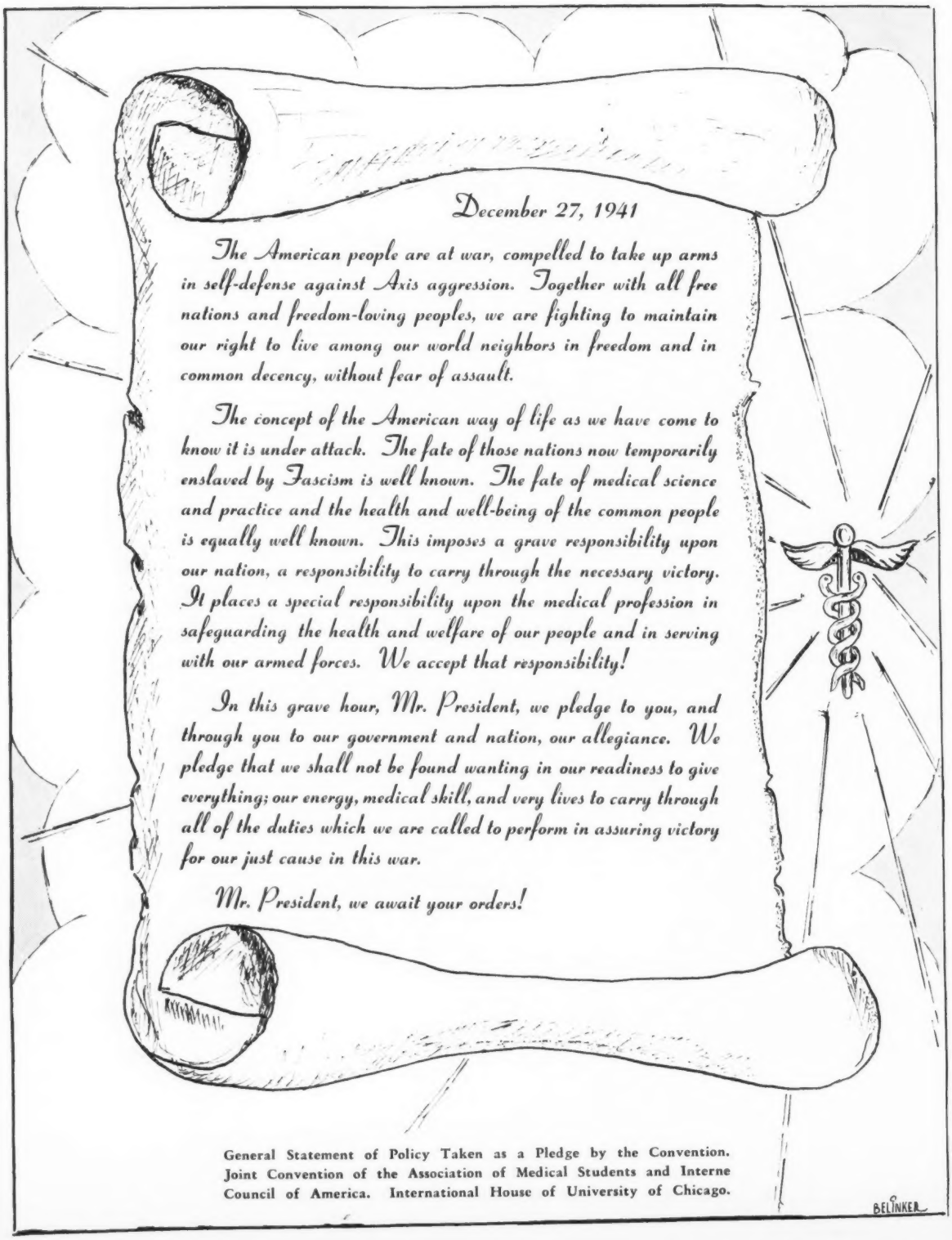

December 27, 1941
The American people are at war, compelled to take up arms in self-defense against Axis aggression. Together with all free nations and freedom-loving peoples, we are fighting to maintain our right to live among our world neighbors in freedom and in common decency, without fear of assault.
The concept of the American way of life as we have come to know it is under attack. The fate of those nations now temporarily enslaved by Fascism is well known. The fate of medical science and practice and the health and well-being of the common people is equally well known. This imposes a grave responsibility upon our nation, a responsibility to carry through the necessary victory. It places a special responsibility upon the medical profession in safeguarding the health and welfare of our people and in serving with our armed forces. We accept that responsibility!
In this grave hour, Mr. President, we pledge to you, and through you to our government and nation, our allegiance. We pledge that we shall not be found wanting in our readiness to give everything; our energy, medical skill, and very lives to carry through all of the duties which we are called to perform in assuring victory for our just cause in this war.
Mr. President, we await your orders!
BELINKER

General Statement of Policy Taken as a Pledge by the Convention. Joint Convention of the Association of Medical Students and Interne Council of America. International House of University of Chicago.

EDITORIALS

THERE is still too frequently heard the business-as-usual attitude. Whether in production or in professional life, this style of thinking and doing can be disastrous. The war should assume prime consideration at The Chicago Medical School and at every other academic institution in the country.

There exists in Civilian Defense as important an instrument for defense as anti-aircraft guns, ships and gasmasks. The physician plays an especially important role in this category. His knowledge can be of tremendous assistance in preparing others in the community in the principles of First Aid. His knowledge of nutrition can help protect the people in a crisis when the health standards of our Nation are likely to be lowered. Finally, his position in the community enables him to bring the issues of the war to the people and thereby help to maintain the morale of the country. The physician need not be at the front to do his duty. There is plenty to be done here at home.

• • •

WE of The Chicago Medical School are confronted with a difficult problem. We are desirous of serving our country and believe that we are qualified to serve as physicians in the Medical Corps of our armed forces. However, because of the fact that we are, to date, not accredited by the American Medical Association, we are not able to obtain commissions to do so. Furthermore, we feel that we are worthy of such recognition.

There are many arguments that we could present to prove our case. The training and record of our graduates compare favorably with that of many accredited schools in the country. Our students have maintained as high a standard on examinations and state boards as those of any school in the state.

Further, consider this anomalous situation. John Doe is a civilian and a resident of Illinois. He has been under the care of a graduate of our school for several years, during which time he has had great confidence in his physician. One day John Doe is inducted into the armed forces and thereafter his former physician has become incapable of taking care of John Doe, the soldier, all because of a change in the color of his clothes.

That we have a role to play in National Defense is shown by the action of the National Selective Service System in granting deferments to our students. But this deferment would enable us to carry on only civilian work. Certainly we feel that civilian medical care must not be neglected, and it must complement military medical care. But the distribution of our country's available medical forces should be handled on an individual basis by the Medical Procurement and Assignment Bureau. Many of our graduates meet all the qualifications for medical service in our armed forces.

We hear military men speak of a shortage of some 1400 physicians already existing in the army at the present time. We see a severe need for medically trained men, a need that will increase rather than diminish as the months pass. And we have a ready source from which to draw. The incongruity and injustice of this situation is too obvious.

As patriotic citizens we ask those who are in authority to correct this situation and allow us to serve as physicians with the armed forces. For once corrected it would be an expression of true democracy and of more complete mobilization of all our strength in the fight against fascism.

XUM

WAR AND CULTURE

HENRY E. SIGERIST, M.D.

Professor of History of Medicine
Johns Hopkins University, School of Medicine

The war is in its third year. It has spread to one country after another and has truly become a world war. If ever a thesis has been proven correct, it was that of the indivisibility of peace. Millions of people, men, women and children, have already died and many more millions are doomed. Millions of families have been driven from their homes. A migration of nations, such as history has never seen before, is going on. The lights have gone out. Will it be total darkness? Will the world revert to barbarism?

First, we should remember that if the lights went out, it did not happen in 1939. The 21 years between the two world wars were anything but years of light. From the moment the treaty of Versailles was signed, the world knew that it must expect a series of new wars. They came soon enough. From 1931 on, one country after another was invaded by aggressive nations with the tacit consent of the great powers. The world, after it had recovered from the immediate effects of the last war, went through a period of economic boom with all its disgusting symptoms when people believed that they could advance themselves in the world by gambling instead of by performing honest hard work. Then came the crash of 1929, ten years of economic stagnation, with millions of people deprived of work and suffering mental and physical misery, in the midst of plenty, in sight of the idle tools they could have handled so well.

The lights went out, not in 1939, but around 1911 when the process of which the present war is but an episode entered into its critical stage. We have had a thirty-years' war already.

The purpose of this article, however, is not to discuss the causes of the war. There is another point that I have much at heart, the preservation of culture.

War and culture do not go together. War is always a reversal to primitive savagery. Whenever a war breaks out, it signifies that civilization has collapsed somewhere. It shows that the civilized methods of solving a problem—international cooperation, scientific planning, negotiation and arbitration—have failed and that there seemed nothing else left but to settle the argument—for the moment—in the primitive way, with the fists. Nobody can kill fellow men with impunity. Of course we know that killing in self defense is legimate and that many noble actions, deeds of great heroism, are performed in war. When a country is attacked by a ruthless enemy, it has only the choice between fighting back or accepting ignoble servitude. We atone for the killing by being willing to sacrifice our own lives. We know, nevertheless, that blood always leaves stains, and that no one kills without suffering for it. War is always savage and the negation of culture.

War is destructive. It destroys not only human lives but also historical records that constituted the memory of nations, works of art that were sources of inspiration to generations. The world will be greatly impoverished in its cultural heritage after this war, although the actual loss may not be as great as we would expect because the war was so easy to foresee. At a time when statesmen were too stupid or too cowardly to prepare for war, librarians and directors of museums showed more wisdom and courage and did get ready.

War destroys endless numbers of actual and potential material values that could have been used for cultural purposes. Uncounted millions of hours of labor are spent to produce the instruments of destruction. On armistice day highly specialized machinery, wonders of technology, worth billions of dollars, will all of a sudden turn into mere scrap iron. A fraction of that money would have been enough to provide the means for eradicating a number of diseases. When last summer two battleships were sunk within a few days, the *Hood* and the *Bismarck,* values went to the bottom of the sea that would have been sufficient to equip and maintain two universities.

War always tends to lower the cultural standard of all people involved. In war time the armed forces automatically become the most important section of society. As a result of hardship, enforced celibacy and the constant proximity of death, the soldier's most urgent want becomes the satisfaction of animal instincts. The rest of the population, whose main functions becomes that of supplying the armed forces with all they require, is obviously affected by this attitude.

And yet culture is needed in war time more than ever. Why? War is not an end in itself; only the perverted ideology of Fascism could declare war the normal condition of mankind and peace the mere

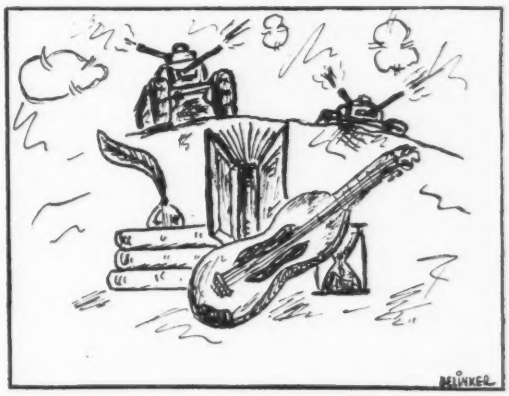
interval between two wars. War is to society what an acute disease is to the individual, a deep crisis in the course of its life. Whether it results in recovery or death depends to a large extent on the cultural forces that a country possesses. France was thoroughly defeated in 1871, and yet the country recovered in an incredibly short time. It did so because Claude Bernard was still alive, because Berthelot and Pasteur were at the heights of their careers, because the country had scholars like Renan and Taine, writers like Flaubert and Zola, composers like Saint-Saëns and César Franck, because the impressionist school was just bursting forth. Where such powerful creative forces are at work a country cannot be defeated. It took Germany with her *Gründerjahre* much more time to recover from her victory.

In 1918 Germany had collapsed and yet there were strong symptoms of recovery. The young students who returned from the war threw themselves body and soul into the most abstract studies. Science flourished with men like Einstein, Meyerhof, and Warburg. In the universities the departments of classics, Sanskrit and Chinese were crowded as never before. New chairs were created every day. When finances were at a heavy low ebb, the Prussian government spent one million marks for the purchase of an archaic Greek statue of incredible beauty. It justly felt that this was one of the best investments a defeated nation could make. The country approved of the purchase, and the statue became a source of inspiration and happiness to innumerable people. If Germany did not recover, but developed into a malignant power that threatens the world with destruction, it was partly attributable to the fact that the war did not actually end in 1918 but was continued with different means.

Today wars are fought on such a tremendous scale that every party, victor and victim, is bound to suffer. Every party's economy is shattered after the war, and every one must face a tremendous task of reconstruction. Such a task cannot be fulfilled unless a country has preserved its cultural resources intact, and the greatest mistake we could make in the present emergency would be to neglect our institutions of culture.

Of all branches of learning, the sciences will probably suffer least. Modern warfare has become so highly technical that it requires the mobilization of all scientific resources that a country possesses. Every day presents new problems, and the war undoubtedly will accelerate the development of many branches of science, of many, but not of all. War science is necessarily one-sided. It is primarily technical and calls for the engineer, the physicist and chemist. After the war, however, we shall be in dire need of a universal science. The task will be infinitely greater than at the present moment, when we shall have to use all the scientific knowledge we possess for the reconstruction of the world, when we shall have to apply scientific principles to the basic processes of social life, production, distribution and consumption. This is why right now we must not neglect but, on the contrary, must develop such seemingly unnecessary fields as genetics, theoretical biology, history, sociology and philosophy of science.

To medicine every war is a challenge. The armed conflict creates an emergency which calls for large numbers of personnel and presents many new problems. The number of physicians needed per capita of the armed forces is much larger than that normally required for the population. No country has a reserve of medical personnel. Hence there is bound to be a shortage of physicians in the civilian population. This is particularly serious in modern wars which are



fought not between armies alone but between nations. The shortage must be compensated by improved organization that will eliminate every source of waste and inefficiency. Thus war becomes a testing ground for a nation's ability to organize all its health services, and it may become a rich source of experience for the organization of services after the war.

The necessity of not neglecting the social sciences is obvious. History is one of the most powerful driving forces of life. Every situation that we come to face, every problem that we are called upon to solve, is the result of historical developments and trends. The way we act is largely determined by the picture we have of our past. Without sound knowledge of history we can act instinctively and opportun-

(Continued on page 35)

THE SURGICAL PROBLEMS OF WAR

LOUIS F. PLZAK, M.D., F.A.C.S.

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Modern warfare with its new methods, which employs rapid-moving, mechanized armies and long range bombers that are capable of devastating cities of large populations, brings war for the first time to the civilian population far behind the front lines. The large cities of England, Poland, Germany, Russia, and China have already become testimony to this fact, and from their experiences much already has been learned in dealing with the problems of civilian casualties. This experience shows:—first, that the injuries are the same for the civilian as for the combatant groups; second, that they tend to occur in appallingly large numbers requiring adequate facilities for their proper care; and third, that this care must be adequate in order to maintain and bolster the morale of the home-front civilian population to keep defense industries going.

Present warfare differs completely from that of the past in the implements used and in the combat-terrain which now includes the air and the under-sea. But the injuries and their cause remain the same. Only in incidence and number have these increased; the cause is always the same: some sort of violence; and its result is always the same: some sort of tissue damage. These assorted injuries can be classified as follows:

1. Wounds: Somatic and visceral,
2. Fractures: Simple and compound; joint injuries
3. Burns:

These may further be associated with immediate or delayed shock, hemorrhage and infection.

In dealing with war injuries, the experience of the last war clearly showed: the value of immunization against disease, especially against typhoid and tetanus; the partial value of local wound antisepsis—and I now refer to the hypochlorite irrigation of wounds devised by Carrell and Dakin; the great value of immobilization of fractures, especially the compound fracture by splinting, and the value of debridement which required adequate removal of damaged tissue and the earliest possible intervention after the wound was produced. Shock and burns were treated empirically, for no physiological basis regarding the pathogenesis existed. In the interval of peace that followed, noted achievements were made in prophylactic immunization against infection, in speed of transport, in handling of the seriously wounded, especially those with compound fractures, in chemotherapy, and in the pathogenesis and treatment of shock and burns. How, then, are these injuries cared for in the present war?

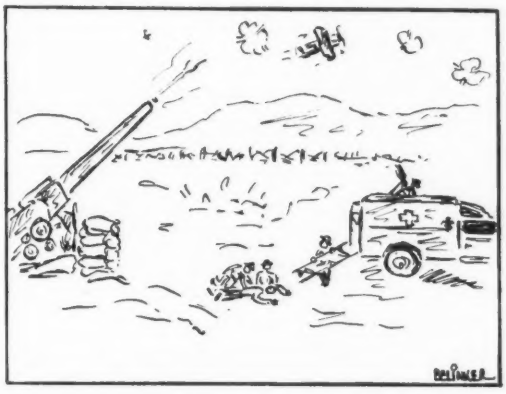
Prophylactic Immunization: Active immunization against tetanus and enteric fever (typhoid, paratyphoid A and B) had already been adopted in the last war, but a high degree of efficiency has only been attained recently through detoxication with formalin. The resulting endotoxoids produce an immunity that is both antitoxic and antibacterial; and if both the toxoids of tetanus and endotoxoids of typhoid, paratyphoid A and B (TAB) are given mixed, it is found that the prophylactic effect of both is increased. The U. S. Army has adopted the method of giving three injections of 1 cc. each at intervals of three weeks and then a reactivating dose of 1 cc. each year or at the time of injury. This conveys a solid immunity that lasts for two to three years. Firor of Johns Hopkins states that largely because of the prophylactic treatment of the British soldiers with toxoid, the incidence of both tetanus and of enteric deaths was only 45 per 100,000 in the Dunkirk campaign as compared to 800 per 100,000 in the first war on the same soil.

Transportation of the Wounded: If success in the treatment of any wound is to be attained it must be closed as soon as possible. This implies closure of the wound in the first few hours after injury. We have heard of the "golden period" in traumatic surgery which implies a period of time up to six hours. Although practical experience shows us that this is true, even for such accidents as perforated peptic ulcer and ruptured appendix, I should like to use Koch's designation of the "platinum period" as being the most ideal for wound care. This implies care of the wound in a period up to two hours following injury, the time during which the wound is still in the phase of contamination, and invasion by the infective agent has not yet begun.

In the present war during the Polish campaign the Germans demonstrated that this speedy care of wounded could be made practical on a large scale. This they accomplished through rapid aerial and motor transportation of the wounded from the field of combat to large hospital centres, such as Vienna, to which the wounded could be flown in an hour's time. Berlin likewise was only one hour away by air, but from the standpoint of morale it was deemed best to move

their large number of wounded to the occupied portion of Austria. There the serious wounds could be given the best of care by experienced surgeons in this so-called platinum period. Most of the wounds so treated were converted into clean wounds followed by immediate closure and went on to healing by first intention, and the incidence of wound infection and sepsis was low indeed.

Compound Fractures: Compound fractures will always constitute a serious problem whether they be incurred under military or civil conditions because they tend to lead to much morbidity and to sepsis that may prove fatal. Although these wounds appear the same, they vary in one respect; in those wounds occurring under civilian conditions (auto and industrial accidents) the bone breaks first and then extrudes to the outside; in those of war origin, bullets and shell fragments and splinters break through the skin, damage soft parts, and then break the bone, carrying to it at the same time dirt from the outside and from the skin together with particles of clothing, presenting ideal conditions for a buried infection.



In World War I, the British military staff regarded these injuries primarily as wounds and secondarily as fractures. The procedure was to heal the wound first and then to set the fracture. Several months often elapsed before deformities were corrected, nonunion overcome, and even peripheral nerve or tendon suture attempted. Many of these fractures never healed because of infection that led to prolonged disability and permanent deformity. After the war, a search for better treatment of compound fractures was made by the American surgeon, H. W. Orr, who, having served with the British during 1917-1919 was quick to observe that their treatment disregarded the basic principles of immediate reduction with debridement, drainage where needed, and adequate immobilization in correct position. These form the absolute requirements to inhibit infection and hasten repair. Skeletal or skin adhesive traction to maintain reduction is also included when necessary. Orr replaced the insecure immobilization offered by splints with plaster of Paris casts which offered complete rest and protection against further injuries of the damaged tissue. Introduction of secondary infection was also avoided thereby, but this was largely due, perhaps, to adopting the principle of not dressing these wounds for a period of four to eight weeks. That meant initial packing of these wounds with a material that offered good drainage plus wound protection, and for this vaseline-saturated gauze packing was used. Orr's teachings immediately brought about a wave of opposition in this country which criticized the method as being unsound on the assumption that the cast and gauze pack produced anaerobic conditions, drained nothing, and introduced irritating foreign materials into the wound. These assumptions have long since been shown to be contradictory to fact, for drainage is adequate and oxygen is not excluded from the wound. Orr's brilliant results with this treatment have been substantiated in civilian practice by Steindler and Gaenslen who obtained complete healing in 85-90% of their cases by this method. Orr's attempt to have the method adopted by our Army met with disapproval in that it was deemed by them not applicable to military use. The fallacy of this, without question, has clearly been demonstrated by the brilliant and almost unbelievable results obtained in the recent Spanish Civil War, and in the retreat by the British at Dunkirk. In their report of 10,000 Spanish cases treated by Trueta in the military hospitals about Barcelona, management consisted of immediate and thorough debridement, primary reduction, immobilization by plaster casting, and infrequent dressings. Close analysis of 1073 cases in one series revealed:

976 satisfactory results
91 bad results
6 deaths (tetanus and sepsis)

By this method these patients were rendered comfortable, stood transportation well, healed quickly with resulting good limbs, and as can be seen from the figures above, rarely developed sepsis, anaerobic infections, or osteomyelitis. Although a number of cases suppurated, there was little attempt at spread of the infection and fever usually lasted only four to five days. The only disadvantage, if any can be mentioned, is the foul-smelling discharge that develops later, but which apparently does no harm. To overcome this Dillworth describes the use of lactose in the wound dressings

for the purpose of preventing cast odor which is due to putrefaction by bacterial proteolytic enzyme action on the exudated organic material. Because of the available sugar the bacteria prefer it to the protein exudate and putrefaction is replaced by fermentation and little odor results. The results of the British at Dunkirk were identical with those of the Spanish. Casualties so treated and sent back to England by boat were expected to be in the throes of septic fever on arriving 4 to 5 days later; instead they were found to be comfortable, temperature free, and the wounds relatively clean and healed. These Spanish and British results are far better than any ever attained in any type of practice. Today the plaster-rig with adequate supply of bandages forms an essential part of the medical armamentarium that goes wherever the field forces go.

Chemotherapy: The use of chemical substances both locally in the wound and systemically is not new. Over 100 years ago chlorine solutions (Labarraque sol of 1814) were used during the Napoleonic wars, and with the subsequent decades other chemicals were added. Some of these were innocuous, but most of them destroyed the tissue as well or damaged its healing or reparative ability. In the past war, two chemicals enjoyed great usage and apparently showed great advantages over those used previously. These were the Biip paste and the chlorine solution of Carrel and Dakin. The former was used largely in attempting to heal chronic infected wounds and draining sinuses. The latter was used for irrigating wounds that were suspected of being infected or actually were infected. Most of these wounds were compound fractures. However, this method called for continuous irrigation with frequent changes of wet dressings. This failed to give the injured part the necessary rest because of movement, irritation, pain and spasm, and invited outside secondary contamination. Many of these wounds continued to appear inflamed and healing and disability were greatly prolonged.

With the discovery of the sulfones by Domagk in 1932 and their local and systemic application to wounds in 1939 came the greatest advance in the chemotherapy of wounds. Today most soldiers of both the Allies and the Axis forces carry small packets of the drug which they are told to sprinkle into their wounds at once. Adson believes that their proper and adequate usage in head injuries will prevent meningitis and encephalitis. The acute streptococcic and staphylococcic infections often yield quickly to these chemical substances. On the other hand, chronic or established infections do not yield too well. Marshall believes that these chemicals are both bacteriostatic and bacteriocidal and only become complete in their action with the local aid of the defense and repair mechanism of the tissue itself. Failure of the tissue to respond would explain the mild infections that occasionally result. Local implantation of sulfanilamide in fresh wounds and in compound fractures has given excellent results with little incidence of post-traumatic infections and no retardation of wound healing as reported in a series of cases by Key and Burford.

In the wounded evacuated from Dunkirk, chemoprophylaxis with sulfanilamide was promptly begun. The few cases that developed infection required continued chemo-therapy and further debridement but then quickly began to heal. In this group the temperatures rarely rose high, as compared to those of the wounded who did not receive such treatment. Dunhill reports 65 heavily wounded British cases including injuries to the elbow, ankle and knee joints which were treated by plaster casting and sulfanilamide. These cases arrived at port after several days of boat transportation, with pus soaking through their plaster casts from which emanated a stench beyond belief. In the past, ordinarily three-fourths of these cases would have required amputation or they already would have developed septicemia; but with the few days of sulfa-therapy and continued plaster immobilization all did well except two. One died from gas gangrene and the other from secondary hemorrhage. True as it may be that the factor of infection is less in this war than in the last because the wounded are cleaner, less fatigued, wounds cleaner and the weapons used are less damaging than the shrapnel and hand grenades of the last war, nevertheless, there is no doubt that much credit must go to the sulfa drugs for the eradication and inhibition of infection.

It is to be hoped that by the prophylactic use of the sulfa drugs closure of wounds by suture after proper debridement can be carried out at once. This obviously would shorten the healing time and reduce tremendously the hospital care in number of days stay and the amount of material required for dressing purposes. Jackson, in a recent report of some 70 cases of compound fractures, has been able to accomplish this successfully. With the steady increase of incidence of wounds in civil life due to automobile accidents as well as the incidence incurred in war combat, chemotherapy has already accomplished much for the economy of the tax payers and the morale of the soldier.

The Treatment of Burns: According to Poate, an Australian, burns form a very common war injury and their treatment adopts the same general principles

(Continued on page 31)

BUSINESS NOT AS USUAL

WILLIAM SCHLAES, B.S.

We all know that there is a war going on; we all know that men, American men, are dying on the battle-field, and we all know that this war is everybody's war, the soldier's, the engineer's, the worker's, the lawyer's, the doctor's and the medical student's. We all want to do our part in the fight against the Fascist aggressor—in a fight not only for the ideals men have been dying for since the world began, but for our very lives.

To do this, we must coordinate the functions and activities of all groups; for example, there are three groups of people in our country whose activity is now of crucial importance, the fighting services, the industrial and agricultural workers, and the professionally trained men. As medical students we are part of the last named group and it is the integration of that group into the common picture with which I wish to deal in this article.

The above three groups represent men at home and on the battle-field. As part of the men at home, we must learn to contribute to the war effort, to carry on to the best of our abilities those functions vitally necessary to supplement the battle on the field and in the air. We can best do this by complete, enthusiastic participation in Civilian Defense, by learning what Civilian Defense is, what it means, what we can do, and how we can serve.

Civilian Defense entails a great many obligations, duties, and responsibilities. Certainly, prime among our duties in Civilian Defense as medical students is the learning of First Aid, and the learning of how to teach it to others. Particularizing the situation to our own school, I should like to point out that we have a First-Aid course offered to us, which will qualify us as instructors of First-Aid, under the jurisdiction of the American Red Cross. We are really needed here. Our local block captains need us to teach first aid, to give people information and assurance about what to do in emergencies. Let us take the First-Aid course, as an obligation and duty of medical students in Civilian Defense.

Our block captains and laymen in general, will need more medical information than first-aid, in this war. They are all beset by the problem of rising food prices, what to buy, what is essential. Is it not our function and duty to give information to people on what are the most nutritious foods, which have the most vitamins for the money? By all means, we should set about organizing the methods by which medical students can assist in the dispensing of this information.

Another aspect of our general health problem which applies to us is answering and learning to answer the oft-repeated question of the South-Sider—"How safe is my drinking water? What should I do about it?" We can point out the importance of immunizations against typhoid to the civilian population and so can give concrete help to our people in maintaining health. We can be useful, too, by supporting and encouraging blood donations, by being donors ourselves, and by pointing out the necessity of blood banks to others.

Still another important task for medical students to perform is the learning of industrial hygiene for there is no single function more important for victory than a steady stream of war materials from our factories. We must learn all we can about how to preserve the health of our workers. Every working day industrial medicine can salvage for workers, every sick day industrial medicine can prevent means more bombs, more blows at our enemy. We, as medical students, have a great opportunity to play an important role in our country's defense by studying industrial hygiene.

Another practical suggestion is our assistance in hospital squads in the maintenance of mobile hospital units, and in acting as aids in emergency teams.

Implicit, however, in all of our tasks, must be our understanding the responsibilities of Civilian Defense, and one of the greatest of these for a non-combatant population is the maintenance of morale. As a pro-

(Continued on page 39)

SOME DIAGNOSTIC PROBLEMS IN INTERNAL MEDICINE

SAMUEL J. TAUB, M.D.

Professor of Medicine, The Chicago Medical School

There are many problems that arise daily in the practice of internal medicine that often tax ones resources in this field and quite often only time and patience will clarify the ailment from which the patient is suffering. I will present here a few diagnostic problems taken from my service at the Cook County Hospital.

CASE ONE

History:

The first patient is a male, age 41, white; admitted to the hospital 1-26-42 with the following symptoms: marked weakness which started one year ago and a progressive pallor associated with dyspnoea even while at rest. Lately he has had attacks in which he becomes quite red and flushed with blotchy red spots appearing over the body and face. He also becomes dizzy and has spells of temporary unconsciousness.

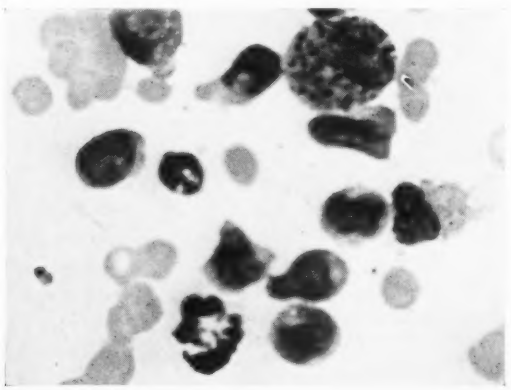
Venereal disease is denied in the history. His occupation is a clerk.

Family History is negative.

Physical Examination: Temperature is 100 by mouth. Blood pressure is 144/80. The lips are red but the face is pale. Heart and lungs are negative. The liver is 3 fingers below the right costal margin, the lower pale of the spleen is just palpable on deep inspiration. Reflexes are diminished but present.

Laboratory Findings:

Hemoglobin 63%; Red blood count 3,670,000; color index below 1. White blood count 25,500; 68% polyneutrophiles; 17% basophiles; 3% lymphocytes; 1% monocytes. There is anisocytosis, poikilocytosis, hypochromia, and toxic erythrocytes. There are 3 myeloblasts and 3 myelocytes. Sternal puncture reveals blast forms predominating; 95% blast forms, 18% myeloblasts, 16% myelocytes, 5% lymphocytes, 2% monocytes, 1½% histiocytes, and a few monoblasts.



Blood chemistry is normal.

Blood cultures are normal.

Diagnosis: Myelogenous leukemia in the subleukemic plane because of the immature leukocytes found in the smear and bone marrow studies.

Discussion:

The differential diagnosis here would have to include sepsis which is ruled out by the negative blood cultures; a severe hypochromic anemia with a relative leukocytosis is ruled out by the absence of a history of chronic blood loss plus the findings of myeloblasts and myelocytes in the blood smears and sternal puncture. An aplastic anemia is ruled out by the high percentage of immature leukocytes found and the high white count.

This patient could not be treated by X-Ray therapy because of the rather marked anemia present. The danger would be in converting this picture into an aplastic anemia or an acute myelogenous leukemia. Fowler's solution mv to x t.i.d. given over a period of a few weeks until the red count and hemoglobin come up to nearly normal will then better prepare the patient for deep X-Ray treatment over the spleen and long bones in order to depress the formation of white blood cells.

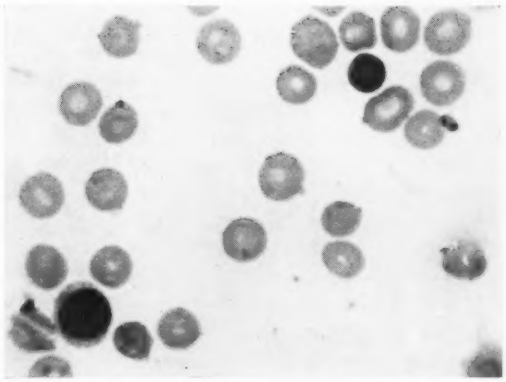
CASE TWO

History:

The second patient is a white man, age 69, who entered the hospital 1-10-42 complaining of leg ulcer for 6 months, pain in the inguinal region 3 months, and loss of 100 lbs. in weight since the past 3 months.

Last July, he noticed an ulcer on the lateral aspect of his left leg just above the ankle. It started as a small reddish papule and gradually grew larger until it began to slough. There were no neurological symptoms.

Polyuria was present 10 times and nocturia twice a night.



Physical examination: an emaciated individual, with large glands present in the inguinal and axillary regions bilaterally. They are soft, semi-fluctuant, not adherent. They seem to conglomerate into each other. There is also a large mass, fairly hard, felt in the lower abdomen in the region of the pelvis.

Heart shows a greatly enlarged left border and right border. Aortic knob is very prominent; the mediastinal glands are enlarged.

Laboratory findings: Hemoglobin 55%; red blood count 3,200,000; color index below one; white blood count 94,000 with 99% small lymphocytes and 1% polymorphonuclears.

A barium enema was not very satisfactory as the barium only goes up to the descending colon where it meets an obstruction. The mass in the pelvis is seen as large glands on X-Ray.

Diagnosis: Chronic lymphatic leukemia and leukemic ulcer of the leg.

Discussion:

This patient is in good condition for deep X-Ray therapy. However, should the hemoglobin, red blood count and thrombocyte count be low and a hemorrhagic syndrome result, X-Ray therapy would be contra-indicated because these elements will be further depressed. At this stage X-Ray therapy has some palliative value. Benzol in 5 to 10 minim doses t. i. d. may also depress the high white blood count. Small blood transfusions may be given for the secondary anemia. The prognosis in these patients is nil.

In the early stages before the glandular enlargement becomes extreme, it is essential to differentiate this disease from acute infectious mono-nucleosis. This condition usually starts with an angina, and enlarged glands in the neck. Heterophile antibodies are produced and give a positive agglutination test to sheep corpuscles in dilutions above 1:64. The absorption test of Davidsohn will eliminate serum sickness.

Hodgkin's disease is ruled out by the blood count and biopsy of one of the glands. Lymphoblastoma is also ruled out by a biopsy and blood picture.

Acute lymphatic leukemia is a dreadful and stormy disease which resembles a septicemia. It occurs in young individuals usually and there are hemorrhages from the mouth, rectum, stomach, or vagina because of a depression of the thrombocytes. The duration is short and may be a matter of two or three weeks.

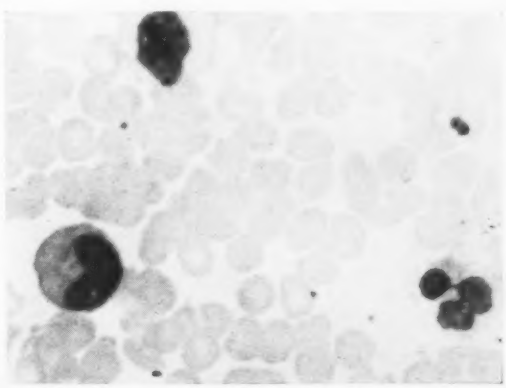
CASE THREE

History:

This patient is a colored man, age 33; dishwasher by occupation. Present complaints are nausea and belching for 6 weeks, sour stomach and fullness and epigastric pain for 6 weeks. Weakness and easy fatigue for 2 months. He has had occasional sour stomach and belching which were relieved by soda bicarbonate and milk. About 6 weeks ago he noticed pain over the left upper quadrant of the abdomen which was not related to food ingested.

Physical examination: Blood pressure 160/110. Pharynx injected. Heart, lungs and abdomen were negative. Reflexes, non-pathological.

Laboratory examination: On admission the blood showed hemoglobin 78%; red blood count 4,250,000; white count 15,400; polys 38% and eosinophiles 52%. The eosinophile count gradually rose to 64% and 69% within a period of one week. Also, about this time the lower pole of the spleen could be palpated. A sternal puncture showed a hyperactive marrow. Red blood cells/white blood cells were disproportionate in favor of the granulocytes. There are mainly immature eosinophiles up to meta myelocytes. Blood chemistry and Wasserman were negative. Intra



dermal skin test with trichina extract is negative.

Diagnosis and Discussion:

The blood count and sternal puncture studies are typical of a rather rare form of leukemia, eosinophilic leukemia. This form of leukemia is really a sub form of a myelogenous leukemia. Instead of blast forms and myelocytes predominating in eosinophilic leukemia, immature eosinophiles are produced almost to the exclusion of all other granulocyte forms.

A differential diagnosis would have to include *all causes of eosinophilia* which are:

(1) *Trichinosis* reveals muscle soreness and pain.
Positive skin test with trichinella antigen which is positive in almost 100% of the cases.
Biopsy of a muscle reveals the trichina spirals.

(2) *Peri arteritis nodosa.*
Superficial aneurysms may be palpated.
Cardiac enlargement is present.
Numbness and tingling of the extremities.
The diagnosis is usually confirmed at autopsy.

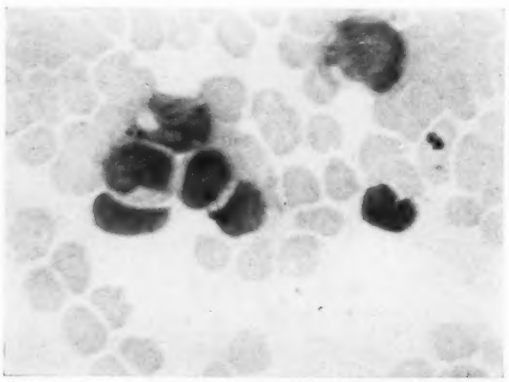
(3) *Intestinal Parasites.*
Ascaris lumbricoides, uncinariasis and the beef or pork tape-worm may cause a high eosinophilia, but these diseases are ruled out by examining the stools for ova.

(4) *Asthma.*
History of allergy and chest findings.
Eosinophilia is never so high.

(5) *Skin diseases.*
External evidences of the disease as pemphigus, eczemas, etc.

(6) *Hydatid cyst.*
Finding hooklets in aspiration is diagnostic.

The treatment of eosinophilic leukimia is by deep X-Ray although the prognosis is as poor as in the other forms of chronic leukemia.



CASE FOUR

History:

The last patient in this series is a white male, 42 years old. The chief complaints are weakness, pallor and a pain in the left upper quadrant of the abdomen since the past 6 months.

Physical examination—Reveals a rather pale individual. The lungs, heart and extremities are negative. The spleen is enlarged to almost 5 fingers below the central margin and hard.

Laboratory examination—Blood count: hemoglobin 55%; red blood count 3.250,000; color index below one; white blood count 42,000 and the differential count reveals almost 60% monocytes present; polyneutrophils 34%; lymphocytes 6%.

Sternal puncture reveals a hyperplastic bone marrow with monocytes and immature forms predominating.

Diagnosis:

This is a rare form of leukemia, monocytic leukemia showing an increase in the monocytes almost to the exclusion of granulocytes and lymphocytes. The prognosis is poor and 100% fatal regardless of therapy.

Microphotographs of these various dyscrasias are shown.

RED CROSS FIRST AID COURSE

Over one hundred students of the Chicago Medical School have begun to participate in the Chicago Civilian Defense program. They have enrolled in a Red Cross First Aid Course which will qualify and prepare them as instructors. In this way they will be able to lend substantial aid in the training of the civilian population for any emergency.

The course is being given by Dr. F. Spector and is sponsored by the Chicago Medical School Chapter of the Association of Internes and Medical Students.

Medicine men *characteristically resorted to sleight-of-hand tricks, not only to effect visible cures, but also in ceremonies, perhaps, to restore any lost prestige. A Walapi medicine man might announce that he had no further use for his intestines. He would then and there draw from his mouth yard after yard of intestine. He had rolled several yards of thread-like sinew into a bolus and had swallowed it several years before, one end being fastened by a string to his teeth. In the stomach the material swelled to proportions that made it easy to mistake for the intestine, and naturally it was thrown into the fire.*

CONCERNING THE TOXIC FACTOR IN TRAUMATIC SHOCK

HOWARD SLOAN B.S.
and
ROLF F. KLAUS

In the attempt to demonstrate the presence or absence of a toxic etiologic factor in shock, perfusion experiments (1) among others were done. Although these experiments failed to demonstrate the presence of shock-producing toxic substances in the perfusates, the experimenters failed to observe whether or not the animals would have gone into shock if the blood to the injured area had been restored. The following experiment was, therefore, devised and performed on a series of dogs.

The animals were anesthetized by means of ether. A carotid artery was cannulated, and blood pressure was recorded by means of a mercury manometer. A mid-line abdominal incision was made, and the area of the division of the aorta into the two common iliac arteries and the middle sacral artery was dissected out. A hemostat was placed across the middle sacral artery, which was then cannulated and connected by rubber tubing to a container of warm physiological saline solution, placed at such a height as to form a column of liquid equal in pressure to that of the carotid artery. A second hemostat was placed across the aorta at its point of division in such a manner as to block the blood flow from the aorta into the right common iliac artery and the middle sacral artery, leaving the other common iliac artery patent, but also leaving a communication between the middle sacral and right common iliac arteries.

The right lower extremity was forcibly struck fifty times with a heavy iron pipe, breaking the femur. The hemostat on the middle sacral artery was removed, and the injured area perfused with 250 c.c of physiological saline, via the middle sacral artery, forcing the blood from the injured area back into the general circulation.

There was no drop in blood pressure. There was a slight rise in blood pressure due to the added saline solution. This rise rapidly leveled off and remained level. After twenty-five minutes, a hemostat was placed on the middle sacral artery, and the hemostat blocking the right common iliac artery was removed, restoring the blood supply to the injured area. The blood pressure then slowly began to drop, and the animals died in shock four to eight hours later.

In one control animal, the circulation was not restored to the injured extremity after perfusion. The blood pressure remained level and high.

In a second series of experiments, the right common iliac vein, internal iliac, hypogastric, middle sacral and all superficial abdominal veins were ligated. The right hind leg was traumatized in the usual manner. The blood pressure slowly fell to shock level in the absence of any venous return from the injured area.

Hematocrit readings taken during both series indicated a hemoconcentration.

DISCUSSION:

Although this experiment would seem to indicate that no toxic vasodepressant substance was liberated into the blood stream from the injured area, it does not exclude the possibility that the capillaries of the injured area might be acted upon extravascularly by liberated toxic substances which increase the permeability of the capillaries and permit the loss of fluid from the blood stream, leading to shock.

Since perfusion of the injured area did not cause a drop in blood pressure and since the restoration of blood to that area was followed by shock, it might be assumed that shock is not due to the effect of a humoral agent.

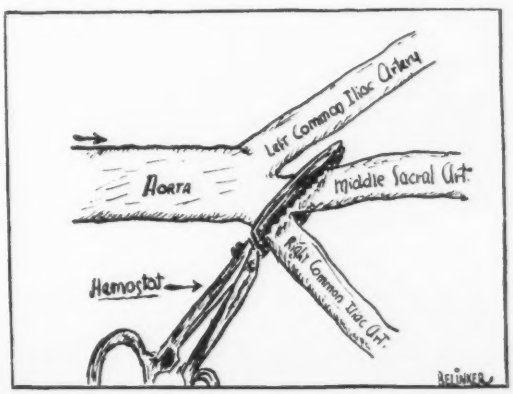
The fact that shock occurred in the absence of a venous return would also indicate that shock may occur in the absence of a humoral agent.

CONCLUSION:

1. No toxic humoral vasodepressant substance was evidenced by perfusion of the injured area.
2. Shock occurred in the absence of any venous return from the injured areas.

Reference

(1) O'Shaughnessy, L. and Slome, D., British Journal of Surgery, 22:589-618, 1935.



MARIHUANA—THE NEWER ASPECT

ROBERT D. REDSTON, A.B.
and
LAWRENCE H. WISHNOFF, B.S.

Marihuana is the American term for the dried leaves and flowers of Cannabis sativa, a large, vigorous weed that can grow in almost all temperate and tropical parts of the world. The origin of marihuana is shrouded in the mists of antiquity; for centuries it has been a problem in many parts of the world. The drug is one of various aliases; it has been called "Kif," "Bhangi," "Gangi," "Hashish," "Tea," "Harf," and lately "Reefers." These are merely New World terms for an Old World drug which has since ancient times been closely associated with crime, violence, insanity, and brutality.

It has long been assumed that the drug causes physical injury and moral degradation and that it is habit-forming. Recent clinical research conducted by the Mayor's Committee on Marihuana of New York City and directed by Dr. Samuel Allentuck at the Welfare Hospital in New York City has indicated that such assumptions are not fully warranted. The writers have observed many of the experiments and assisted in the collection of the statistical data involved. This research was conducted for a period of eighteen months on ninety volunteers, half of whom were users, and the remainder, non-users of the drug. On admission, physical, neurological, and psychiatric examinations were made on all subjects. The neurophysiological status of each was determined and changes under the influence and following the use of the drug were sought. The drug was administered, (1) in the form of cigarettes, (2) by means of subcutaneous injection of the drug extract, and (3) in the form of pills.

The effects of marihuana are unique, although its physiologic effects have been likened to the atropine group of drugs and its psychic effects to those of alcohol. The following is a clinical picture in sequence of the events resulting from the ingestion of the plant. This pattern is a direct but slower parallel to that followed by smoking its dried leaves.

Effects can be noted within 30 minutes to an hour after ingestion of the leaf. The conjunctivae are reddened, the pupils dilate and react sluggishly to light. There is photophobia, lacrimation, tremor of the eyelids, and nystagmus on lateral gaze. The tongue becomes tremorous and dry, and the mouth and throat parched, suggesting a diminution in salivary secretion. Cardio-vascular changes consist of an increase in the radial pulse and a rise in the blood pressure which closely follows the pulse elevation. There is involuntary twitching in the extremities, hyperflexia, and increased sensitivity to touch, pressure and pain stimuli. Also noted are disturbances in equilibratory and non-equilibratory status, as suggested by the marked swaying and abnormal finger-to-finger and finger-to-nose test performances. All of these phenomena persist for about twelve hours.

Two to three hours after ingestion of the drug, mental phenomena arise. The patient admits being "high." This is characterized by a sensation of "floating in air," by a feeling of lightness or dizziness in the head, ringing in the ears, and heaviness of the limbs. The patient reaches the euphoric state and finally a delicious but confused lassitude results. Distances and time intervals are stretched subjectively and in about three to six hours the mood is overcome by hunger (mainly a craving for sweets), fatigue, and sleepiness. The individual may sleep one to six hours and upon awakening is "down," i.e. no longer "high." The physiologic symptoms may persist a few hours longer than the mental symptoms.

The mental status reveals a hyperactive, apprehensive, loquacious, somewhat suspicious individual. His stream of talk may be circumstantial, his mood may be elevated, but he does not harbor frank abnormal mental conduct. Attention, comprehension, and concentration are slightly disturbed.

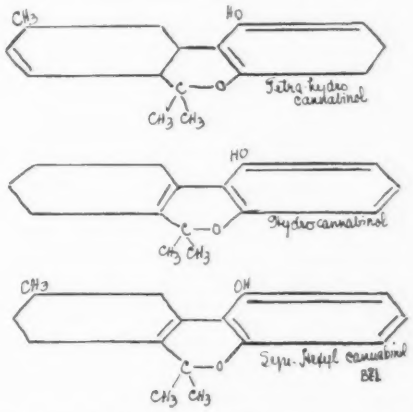
In amounts greater than the tolerance of the individual, all the preceding manifestations, physical and psychic, become quantitatively greater and new events arise. The respirations become labored, and

there is pallor, perspiration, tachycardia, and irregularity of the pulse. The subject may complain of nausea, and there may be retching, vomiting and diarrhea, along with urinary urgency. His apprehensive state is interrupted by laughter and weeping, talkativeness and silence. At such times the patient may say, "Doctor, I feel empty in the pit of my stomach . . . I'm afraid I'll blow my top . . . I may not come out of this . . . I'm afraid I'll die . . . I don't know when to breathe in or out . . . I'm all mixed up . . ." The subject may assume grotesque, statuesque-like positions, and experience visual pseudo-hallucinations in the form of flashes, lights, apparitions, both microscopic and macroscopic. More intense intoxication will elicit auditiory hallucinations, often very reminiscent of the alcoholic neuroses in delerium tremens. If he is given a barbiturate sedative to effect sleep, he may awaken after a few hours with complete memory of all his experiences, and unimpaired insight. The prolonged effects of the drug are strongly subjective and consist of an increase in fatiguability, vague pains and aches, and resemble very closely an alcoholic "hangover."

Experimental investigation was undertaken on the effects of marihuana intoxication for short periods of a few hours, and longer periods ranging from several days to five or six weeks. This was performed on both users and non-users of the drug. In almost every instance, observations made during the intoxications were within normal limits. Such tests as electro-encephalography, brain metabolism, skin temperature, electrocardiogram, circulation time, cardiac visualization, liver function tests, gastro-intestinal X-rays, gastric analysis, gastric motility, blood chemistry, blood picture, and basal metabolic rate, all showed that the physiologic processes of the body were little if at all disturbed.

Marihuana, unlike the opium derivatives, does not give rise to a biologic dependance accompanied by withdrawal symptoms. This conclusion based on experimental evidence is contrary to previous assumptions that use of the drug leads to strong addiction. It does not establish a strong craving, as results from habitual use of tobacco or as seen in chronic alcoholic indulgence. With marihuana, the user soon learns his tolerance level and attempts to keep it at a pleasurable level. As with other drugs, in using gradually increasing amounts one can adapt himself to quantities of marihuana which if taken initially will give rise to toxic symptons. The drug has been found to be no more aphrodisiacal than is alcohol; that is, in lowering the inhibitions it facilitates latent sexual inclinations.

Marihuana, after much research and effort, yielded the secret of its active constituent. Dr. Roger Adams and Associates of the Noyes Chemical Laboratory of the University of Illinois in Urbana have not only isolated the essential constituent but have successfully synthesized it. The identity of the chemical effects of these products as related to the crude drug has been established in the course of the work done by the Mayor's Committee. These substances, as is evident by comparison of their chemical formulae, are very similar. They elicit clinical, somatic, and psychic manifestations which differ only in degree. The natural derivative, called tetrahydrocannabinol, is most potent. Its synthetic equivalent called Drug No. 1, or synthetic hydrocannabinol is less potent, with another synthetic preparation called Syn-hexyl ranking between them. These formulae are as follows:



Dr. Matchett of the Treasury Department Narcotics Laboratory has developed an acetylated marihuana oil which gives clinical results not unlike the products developed by the Urbana investigation.

The therapeutic application of marihuana is more a matter of history than present day practice. It has been almost entirely replaced by present day analgesics and hypnotics. It has been used in the past for spasmodic affections, such as asthma, whooping cough, paralysis agitans, migraine, neuralgia, delerium tremens, etc. Externally, in combination with other agents such as salicylic acid and collodion, the extract has been used in treatment of clavus. Recent studies of the therapeutic action of the new derivatives are still in progress. The new studies of the therapeutic applications are still being done in connection with opiate drug addiction, depressed phases of cyclothymic psychoses, reactive depressions, and in certain psychoneurotic disorders.

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XUM

FURTHER NOTES FROM AN AMERICAN MEDICAL STUDENT IN THE ORIENT

(Editor's note. The interest evidenced by our readers in the "Notes From an American Medical Student in the Orient," published in the last issue of the QUARTERLY, has prompted the publication of further "Notes." Actually, these notes are not in diary form, but are excerpts of letters from Joseph H. Maltzer, an American studying at the University of Hong Kong, Faculty of Medicine, to his wife, here in the United States. Mr. Maltzer, has been in the Orient since late June, 1940, and is at present a prisoner of war in Hong Kong, which is under Japanese control at this writing.)

***Hong Kong,* December 31, 1940**

. . . About two weeks ago classes stopped and I went on a vacation. I went swimming . . . climbed mountains . . . went to the races . . . and one day we went on a picnic.

About three hours by river boat is the Portuguese Colony of Macao. I went there for a couple of days with the hockey and badminton teams of the University. The place is a "den of iniquity." It thrives on the sale of opium, on gambling, and prostitution. I didn't try the opium or prostitutes, but I did get into a dice game. I made my expenses for the trip, $12 (U. S. money). In fact, I left the other boys in the Chinese hotel, went to the best European joint, took the best room, and in general, was a king for two days. I had wine with my meals, chicken, turkey, duck—the finest of everything.

Classes begin the third of January. I shall not be sorry.

***Hong Kong,* January 9, 1941**

. . . For the first time in many months it is raining. There is a faraway sound of an automobile toot, the crackle of rubber tires on wet roads, and the soft patter of rain outside. Oh! well, back to my work.

. . . The air-raid shelters, even with another year's work will not be able to accommodate more than 250,000 people. Machinery is not scarce, but labor is so damned cheap that the picture of the coolie, just bones and skin, is about what the whole population looks like. The foreman of a gang (the one who speaks English) gets $40 (H. K. money; $10 U. S. money) per month and he can hardly feed himself on it. The ordinary worker gets less, and the women who work in these gangs get half of what the men get. The lethargy and stupid nature of the coolie Chinese is hard to describe. For thousands of years the Chinese have absorbed all their would-be conquerors by a process of letting the aggressor come in, take what he wanted, and then assimilating him, or defeating him by passive resistance. However, in North China, now under Japan, the language taught in schools and in all the offices is Japanese, even the customs are Japanese . . . with the new methods and propaganda, the Chinese culture may be the one to disappear . . .

***Hong Kong,* January 23, 1941**

You remember that in my last letter I said that it was raining. Well, it hasn't stopped yet. This morning it was coming down so hard that I turned over on my left side and went back to sleep . . .

***Hong Kong,* February 2, 1941**

. . . On New Year's Eve I went to one of those cabarets where you pay one dollar (H. K. money) for three dances with a Chinese taxi-dancer. Hell! what a way to spend the New Year! There were a lot of European males around—the wives are gone, I don't recall if there was much slobbering. I think not.

Those terrible health reports from the paper I sent you apply to the Chinese. It is a wonder that more of them do not succumb. If you only saw what they eat and the conditions under which they live, you would remark at their resistance . . .

***Hong Kong,* February 21, 1941**

. . . There is but one thing that will get me home—advice by the American consul to leave immediately . . . The Dean is the president of the Hong Kong Christian Association. Me? I'm the treasurer . . .

***Hong Kong,* March 2, 1941**

. . . I played a game of softball this morning with the University team. We won our game, 5-2, playing against the R. A. F. Next Sunday we play the team from the U. S. S. Mindower, a gunboat stationed in Hong Kong and Canton. This Monday there will be a general meeting at which I will be elected vice-captain. It's all fixed up . . .

(Continued on page 32)

OBITUARIES

A. AUGUSTUS O'NEILL, M.D., F.A.C.S.

With the death of Dr. A. Augustus O'Neill, former President of The Chicago Medical School, on Jan. 4, 1942, the medical profession of Chicago and of the United States lost one of its most prominent and active members. Dr. O'Neill served as President of The Chicago Medical School during the years 1924 to 1926, being Acting President in the year 1930-1931, and again occupying the position of President in 1931-1932. A member of the Board of Trustees during the years 1927-1930, Dr. O'Neill served as a member of the Board of Arministrators during the years 1926-1931.

Dr. Anthony Augustus O'Neill was born November 25, 1859, in Merthyr-Tydfil, Wales, Great Britain. He received his early medical training at the University of Kansas Medical School, receiving his degree in 1890, and from the Jefferson Medical College in 1893. He was Surgeon-in-Chief of the Columbia Hospital from 1898 to 1930, and served as director of the American Red Cross of the Chicago Area in 1914. He was made Life Director of the A.R.C. by the Late President Wilson. Dr. O'Neill was a member of the National Council of Defense during the World War and was the Organizer and Chairman of the Influenza Commission in Illinois in 1918.

As President of the Chicago Medical Society in 1916, Dr. O'Neill also served as a member of the

(Continued on page 37)

LESLIE FREDERICK MacDIARMID, M.D., F.A.C.S.

The death of Dr. Leslie F. MacDiarmid brought to a close over three decades of service to the medical profession.

Dr. MacDiarmid was born December 25th, 1884 in Omaha, Nebraska. He completed his undergraduate studies at Creighton University in 1906 and received his medical education at the University of Illinois from which he was graduated in 1909.

During the period 1926 to 1938 he was Director and Member of the Surgical Staff of the Garfield Park Hospital and from 1920 to 1938 served as a member of the surgical staff of the University Hospital. He was associated in the course of his life with two medical schools. He served as Chairman of the Department of Therapeutics at Loyola Medical College from 1916 to 1917, from 1917 to 1922 as a member of the surgical faculty.

During the last decade Dr. MacDiarmid was closely and actively associated with The Chicago Medical School. From 1931 to 1938 he served on the Faculty as Professor of Surgery and as Head of the Division of General Surgery, and on the Board of Trustees as Member of the Executive Committee (1932), as Vice President of the Board (1932-33) (1935-36) and as Chairman of the Board (1938-39). Although never completely severing his relations with the school, Dr. MacDiarmid retired from active service in 1939.

XUM

THE BASIS OF VISCERAL PAIN

W. E. MacFarland, Ph.D.
Associate Professor of Microscopic Anatomy
The Chicago Medical School

Certain types of afferent impulses in the nervous system result in the sensation of pain. When any cutaneous area is harshly treated, a definite localized pain area may be temporarily established; however, a similar stimulus to a deep viscus, if effective, might will result in a vague type of diffuse pain either in the region of the viscus or in some other part of the body. Medical opinion has thus distinguished between somatic and visceral pain.

In general, visceral sensitivity is different in many respects from that at the periphery. William Harvey's historical examination of the exposed beating heart of a young man in the presence of King Charles I is an important landmark in the development of our present ideas on this subject. Harvey noted that touching the heart failed to arouse any sensation in the owner. The next two centuries produced no marked advance in this field and, as late as 1900, some claimed the viscera to be entirely devoid of sensitivity. Later experiments have shown that the viscera are definitely sensitive to 'adequate stimuli'. Tactile, pressure and temperature—the last a possible exception — stimuli are not included in this group. That leaves pain fibers as the chief afferent elements supplying the internal organs. As White & Smithwick ('41) have summed it up: "Sudden distention or strong contraction of any part of the gastrointestinal or genitourinary tracts, rapid stretching of the capsule of such solid viscera as the liver and spleen, and abrupt anoxemia of the cardiac musculature are now recognized as the causes of pain in visceral disease."

Since the pioneer work of Langley and Gaskell, it has been customary to classify all those neurones supplying smooth muscle and gland cells under the autonomic nervous system. In other words, our visceral bodily functions are automatically controlled by this adjunct of the central nervous system. Langley omitted sensory fibers from his classification but it is now apparent that, although numerically in the minority, they constitute an integral part of the system and form the peripheral basis for visceral sensation. As will be considered later, visceral motor impulses are also important in the production of pain; therefore it is proposed to consider the entire system with emphasis on the peripheral distribution. It will be readily recalled that the autonomic nervous system is composed of the two major subdivisions, the sympathetic or thoracolumbar outflow and the parasympathetic or craniosacral outflow, that each of these is composed of pre- and post-ganglionic segments outside the cord, and that synapsis is made either in the paravertebral ganglionated chains or in terminal ganglia in the walls of the viscera. When both the sympathetic and parasympathetic supply a viscus, opposite action is characteristic. For details, see standard monographs and reviews on the subject.

Microscopically, there is no sure way to identify the different physiological types of neurones. In the autonomic system, visceromotor fibers far outnumber sensory fibers. The former are myelinated in their preganglionic segments and unmyelinated in their postganglionic. Sensory fibers are usually myelinated. Whether viscerosensory fibers are less myelinated than somatosensory and thus slower conductors is a moot question. To all appearances, there is no diagnostic histological difference between the two types. The normal origin of a sensory impulse is an adequate stimulus at free nerve endings or special end organs. Just as sensory impulses from the periphery travel directly to the spinal cord over the dorsal roots so also do those impulses from the viscera. Both 'types' have their cell stations in the dorsal root ganglia. Thus it is apparent that viscerosensory pathways do not form synapses in the autonomic ganglia but pass through them uninterruptedly to the central nervous system.

Pain fibers with little or no myelinization end in the substantia gelatinosa Rolandi making synaptic connections here with neurones of the second order whose cell stations lie in the posterior gray column. The pathway then crosses immediately to the other side of the cord and ascends in the lateral spinothalamic tract to the posterolateral ventral nucleus of the thalamus. From here neurones of the third order go by way of the thalamic radiation and posterior limb of the internal capsule to the posterio central gyrus of the cerebral cortex. This is the main pathway for pain sensation and is closely associated in the cord with fibers carrying impulses for temperature sensation and also with the ventral spinocerebellar tract. The latter in company with the lateral spinothalamic and spinotectal pathways constitute Gowers' tract which may be successfully transected to relieve intractable pain.

It has long been recognized that painful areas of the skin may be indicators of the site of visceral pathology. The basic anatomical fact upon which such localization of a diseased viscus depends is that one of the earliest more or less permanent connections during our embryonic development is made between the budding segmentally-arranged neurones and the body somites. This primitive metamerism is pretty well lost in the adult but the spinal nerves are still segmentally arranged and their unchanging distribution to the skin, muscles, joints and ligaments reflects the origin of these parts from their respective somites.

Autonomic nerves are likewise segmentally arranged in close association with the spinal nerves and, when a painful irritation is set up in a viscus, the impulses travel over the viscerosensory neurones to definite segments of the spinal cord. From this point, the impulses may continue directly to the level of consciousness and produce a pain felt in the viscus or the impulses may be referred to the skin area which receives its innervation from the same spinal segments which supply the diseased viscus. It is one matter to say that pain is referred and yet quite another matter to expain just how it is referred without violating the Bell-Magendie Law.

The following pathways for visceral pain have been taken from the most plausible suggestions in the literature: (a) Impulses go directly to the brain over the route described above and pain is felt only in the region of the diseased viscus. (b) The concept of the irritable focus was used by Mackenzie to explain all types of visceral pain. Sensory impulses were said to set up an irritable focus in the spinal cord by lowering the threshold of neurones usually stimulated from the periphery. Thus, impulses which were previously subthreshold from the periphery now considerably overstepped the threshold to produce the sensation of pain in the cutaneous areas. (c) A visceromotor reflex was believed to be the cause of pain produced by stimulation of the superior cervical ganglion which is believed to lack sensory fibers. It has been suggested that motor impulses to smooth muscle may be the causative factor. Visceral sensory impulses are said to set up a reflex in the spinal cord which is referred over the visceromotor pathways to the skin. These motor impulses are believed to liberate some metabolite which may in turn stimulate the sensory pain endings. (d) an antidromic reflex seems highly probable in many cases of referred pain. The fact that anaesthetization of the affected skin area produces relief from the referred pain supports—but does not entirely confirm—this view.

Relief of intractable visceral pain may be accomplished by interrupting visceral nerves either by chemical or surgical means. When the peripheral pathways are known—and our knowledge is far from complete —it is obvious that this relief can be achieved much more satisfactorily and with less hazard than by transection of Gowers' tract or by ablation of parts of the brain. The first surgical therapy on the autonomic was tried just before the turn of the century in treatment of epilepsy and exophthalmic goiter. In both cases, the operation involved removal of the cervical sympathetics but the results were not encouraging. Since the time of the First World War, much progress has been made in surgical treatment of pain. A few common clinical cases will illustrate present methods: (a) In the treatment of angina pectoris, the older methods varied between removing the cervical sympathetic chain to removal of the superior cervical ganglion only. Relief usually followed but in few cases was it complete. White and Smithwick ('41) have reported their method of removing the upper four or five thoracic ganglia in over seventy patients with good results. This seems like a very sensible procedure since it is known that the cardiac nerves arise from these thoracic segments. Removal of the cervical sympathetics would at best only partially interrupt the sensory neurones from the heart; whereas removing the thoracic ganglia would divide the direct sensory fibers as well as those which course through the lower part of the cervical trunk. There is no reliable evidence for pain fibers in the vagus. Davis achieves the same result by posterior rhizotomy of the upper thoracic roots. This is a different dorsal approach but avoids interruption of any motor fibers to the heart which, incidentally, does not seem to be as important a consideration as one would be led to believe on theoretical grounds. It is probably redundant to state that the more severe cases of angina are not good surgical risks. (b) Referred scapular pain is frequently traced to the gall bladder. Relief in this area has been obtained by section of the right major and minor splanchnic nerves which represent thoracic segments 5 to 11 and sometimes as high as segment 3. (c) Direct pain from the stomach and intestines is rare, pain usually arising from involvement of the parietal peritoneum. The former is best treated by section of the appropriate splanchnic nerves while the latter would require treatment of the spinal nerves. (d) Relief in dysmenorrhea is usually obtained by removal of the superior hypogastric plexus. It is known

(Continued on page 37)

SURGICAL INSTRUMENTS—A SHORT HISTORY

The source of material and the cuts for this article were obtained through the kind cooperation of V. Mueller and Co. We wish to thank them for their assistance.

Hippocrates

Three essential developments which occured between 1885 and 1915, marked the inception of modern surgery. These great accomplishments are: 1. Discovery and use of anaesthesia; 2. Mastery of hemostasis; 3. Discovery and adaptation of antisepsis and asepsis. So vastly important were these discoveries to our present methods of surgery, that we are inclined to forget what attempts were made in surgery technique prior to this time. It is therefore our attempt, without detracting from the credit due modern surgery, to look back into the past, viewing the methods of our forerunners.

We are indebted to archaelogists and collectors for their care and zealousness in unearthing and preserving countless surgical instruments, which when arranged chronologically, give an authentic continuous picture of the advance of surgery. Thus, we have a story laden with romance, human interest, and even occasionally infused with humor. It is therefore not our story, but a tale told by ancient half-forgotten instruments or their remants.

Flint knives give us the first clue to surgery. These knives dating back to the Neolithic Age, were clumsy, crude instruments use for trephining. The purpose of this surgical treatment was to open the skull, thereby expelling evil spirits, which inflicted illness upon the luckless patient. The benefits of this operation however were offset by the fact that with the spirits, some essential brain substance also departed.

A large assortment of knives, specula, forceps, and other types of instruments unearthed, gives us undeniable proof of the medical ingenuity of the ancient Egyptians physicians.

A hundred and one different instruments, dating back as far as 1600 B.C., proved the wisdom of ancient India in surgical fields. The instruments of that day make an impressive list, and includes 28 types of sounds and cauteries, 24 types of forceps or as they were then called, "beaks", because of their resemblance to the beaks of birds. Also used were knives, scissors, needles, trocars, tooth extracting forcepts, and even a magnet. Remarkably enough, these instruments were used to perform such operations as gall stone extractions, closing fistulas of the colon, and plastic surgery such as replacement of noses, ears, lips, and parts of cheeks, lost in battle. Cleverly devised splints and machines for setting dislocated limbs and joints were in constant use in this same period of history.

At approximately 460-370 B.C., Hippocrates popularized the techniques of cupping and blood letting, but his contributions to surgery are epitomized by his apparatus for setting dislocated joints, which show his knowledge of the fundamentals necessary for this treatment.

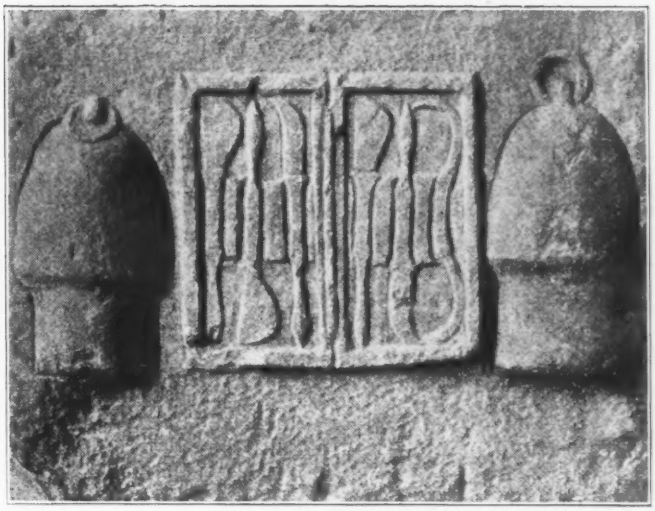
Explorations in the ruins of Pompeii have unearthed a vast collection of shears, specula, pincers, lancets, cannula, tenacula and cautery irons. In the ancient days, the numerous hemorrhages incurred on the battle fields could only be arrested by use of cautery, styptics or hot oils. This technique was practiced for about a thousand years, until in 1537, a military surgeon introduced the use of ligatures. The Romans, Celsus and Galenus had mentioned ligatures in their respective times, but no heed was taken as to their worth, and added to this, legislation forbade their use.

The advance of surgical instruments and techniques was great during the period of about 1560, as can be evidenced by the introduction of forceps with spring, and ratchet, and numerous other instruments from which our modern instruments have been derived.

From this period to the present day, few new basic instruments have been developed, and the process has been an evolution of instruments for the purpose of improvement and refinement. Undoubtedly however, the future will add much in the way of instruments and techniques and improvements of those already known.

—J. Clare-H. M. Permesly.

1



2

1—The man without arms could do many things better than a man properly put together. From Pare's treatise on "Monsters" (1585).

2—A stone carving of early Egyptian instruments.

3—Operation of couching cataract.

4—Setting a dislocated vertebra.

5—Priest drawing evil spirit out of deranged patient by means of prayer

3

5

4

CHEMISTRY IN WARTIME

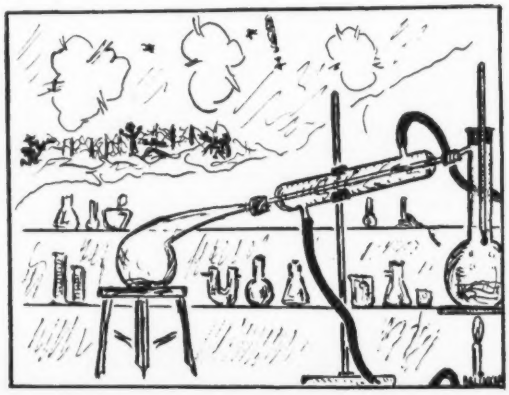
RICHARD G. ROBERTS, B.S., Ph.D.
Associate Professor of Physiological Chemistry
The Chicago Medical School

To the average man in times of peace, chemistry, if not the chemist, is looked upon as a good genii. For chemistry has brought to him a great variety of things which civilized people associate with modern living. It has helped him to live the good life. But in times of war many things are different, and viewpoints change. Chemistry is looked upon as an abomination by some people, at least, and the chemist as some kind of a scientific "Enfant Terrible." He must be such, they say, because he invents new explosives, lethal gases and various concoctions of the devil. If such people will examine both sides of the ledger impartially, however, it must become evident that in war as well as in peace many activities of the chemist are beneficial to mankind. And anyhow, the chemists can console themselves by reflecting that old homo sapiens did a fairly good job of inventing destructive weapons of warfare long before there were any chemists or even alchemists.

The first weapons used by mankind were impact weapons, and these are still rated by military men as being the most effective. The most primitive of impact weapons did not involve any use of chemistry, unless one considers the work done by muscles in lifting a heavy stone or in hurling a spear, as a chemical reaction. To a modern biochemist, however, such muscular activity would be classified as an anaerobic, exothermic chemical reaction. This classification has not been intended to confound, but only to remind those diligent writers of the history of warfare that they might have been a bit arbitrary in relegating to chemistry a comparatively recent participation in these well known and strenuous but honorable activities of men and women.

To give the historians due credit, however, they have classified the use of fire bombs, and smoke screens as chemical warfare dating back to 424 B.C. when a flame projector and fire balls were used in the siege of Delium. These were crude, but possibly effective agents of warfare. The flame thrower consisted of a hollow tree trunk to the lower end of which was attached a basin filled with glowing coals, sulfur, and pitch. A bellows blew the flame from the tree trunk in the form of a jet, setting fire to the enemy fortifications, and aiding the besiegers in the capture of the city. The defenders of the city naturally resented the effrontery of their visitors for using this flaming "key to the city" without their permission, and in return flung out a dubious "welcome mat" of flaming fire balls. These fire balls were made of resin and straw. As the centuries passed the effectiveness of fire balls and other incendiaries was improved and cumulated in the development of "Greek Fire." If the records of the ancient can be trusted, "Greek Fire" contained pitch, resin, petroleum, quicklime and sulfur. The quicklime, on contact with water, generated sufficient heat to ignite the petroleum, the burning of which ignited the other combustible materials. The light vapors from the petroleum caused explosions which still further spread the flames. It was difficult to extinguish "Greek Fire" because water increased the reaction of the quicklime and spread the petroleum. This incendiary was extensively employed in the wars of the Middle Ages, and its use survived until the introduction of gunpowder in the fifteenth century. The development of smoke screens lagged behind that of incendiaries because the generals of ancient armies regarded smoke as a tactical handicap to land warfare, and, therefore, methods for its artificial generation were neglected. History does record, though, that King Charles XII of Sweden crossed the Dvina River in the face of the opposing Polish-Saxon army under the protection of a smoke screen generated by burning large quantities of damp straw. Perhaps this is why Swedes still prefer snuff to tobacco smoke.

In contradistinction to smoke and fire which have an historical background in warfare, the so called war gases were first brought into extensive use during



World War I. They can be classified in several ways: chemical constitution, physical properties, military markings and physiological action. Their chemical classification is complex and varied; their physical classification includes gases, liquids and solids. Their military classifications was introduced for simplicity and secrecy such as green X, blue X, M-1 or WP and their physiological classification is based upon their various reactions upon animal tissues. The physiological classification is the one that will be described here.

(1) Lung injurants—Agents which, when breathed, cause inflammation and injury to the interior cavity of the bronchial tubes and lungs, e.g., phosgene or chlorpicrin.

(2) Systemic toxic agents—Substances which pass into the blood stream and exercise a general systemic poisoning, e.g., hydrocyanic acid or phenylcarbylamine chloride.

(3) Irritants or sternutators—Agents which produce violent sneezing and coughing followed by temporary physical disability, e.g., acrolein or diphenylchlorarsine.

(4) Lacrimators—Substances which cause a copious flow of tears and intense, though temporary, eye pains, e.g., bromacetone or brombenzyl cyanide.

(5) Vesicants—Agents which, when absorbed or dissolved in any part of the human body, produce inflammation and burns with destruction of tissues, e.g., mustard gas, dimethyl sulfate.

Among the compounds mentioned above, the student of biochemistry will probably remember three of them the best. Acrolein, he made in the laboratory by dehydrating glycerine; phosgene or carbonyl chloride was the compound which Sir Humphrey Davy caused to react with ammonia in 1812 to first bring about the synthesis of urea, and dimethyl-sulfate was studied as a good methylating agent for treating salicylic acid to produce oil of wintergreen. So we see that these chemical terrors when tamed serve many useful purposes.

Strangely these poisonous gases have not been used very extensively in World War II so far. Perhaps they will be used later in the war; no one knows for sure. But their not being used in the present war has not been due to any humanitarian instincts or beliefs. Most military men seem to think that for dollars spent, more damage can be done by using high explosives, shrapnel, or incendiary shell than by gas shell. For example, phosgene which accounted for 80% of the gas casualties of World War I, and which is ten times as toxic as chlorine must have a concentration of 0.5 mg. per liter and an exposure of 10 minutes to be fatal. So it seems that the gas shell has been relegated to a secondary place by the military economist.

Besides his efforts to create destructive impact and chemical weapons such as high explosive shells and lethal gases, the chemist has done much to aid in the rapid transportation of troops. Such rapid transportation is often decisive in the winning of a battle. To quote General Forrest of our Civil War days, "The bestest way to win a battle is to git thar fustest with the mostest men." And General Forrest knew what he was talking about for he won many an engagement with his swiftly moving cavalry. Napoleon Bonaparte said that an army marches on its stomach, and the Duke of Wellington remarked that the most important need of a soldier was a pair of stout and comfortable shoes. These remarks of famous generals were apropos for the armies of their days and still apply in the 20th century, but the modern soldier also rolls on his tires and zooms on his wings. This implies the need of enormous quantities of rubber and high octane rating gas. Rubber also plays an important part in army life in keeping the soldier dry and warm, and the old army poncho rates along with food and shoes in this respect. The first soldiers to use the rubber poncho were the Indian warriors of the Paraguayan Chaco where the rubber tree grows wild. Early Spanish explorers have left us records concerning the manufacture of ponchos by these Indians. In brief, a coarse hemp cloth was dipped in rubber latex and held above the flame of a smoky fire. The result was a very serviceable rubber poncho. These South American Indian soldiers could not easily be cut off from their rubber supplies by some hostile navy, and in this they were more fortunate than many modern soldiers in various countries of the world. And here is where the chemist again becomes of great importance, for elastomers having many rubber-like qualities can be prepared from sources that have little resemblance to a rubber tree; for instance, an oil well. And to make the case still better, the elastomer can be prepared from the waste products of the well. Many of us have visited the oil fields at night, and have been amazed at the great number of blazing fires in these fields which illuminate the skies for miles around. We were even more amazed to learn from the oil men that the gases which fed the numerous fires were too volatile and dangerous for commercial use and were, therefore, being destroyed. But the chemists are putting a stop to that. By the use of proper catalysts these 2, 3 and 4 carbon fragments can be polymerized

(Continued on page 34)

DIAGNOSIS OF EPILEPSY

HERMAN J. HORVITZ, M.D.

Concurrent with the advancement of medicine in the many fields of science, neurology has greatly contributed to progress a more profound understanding of epilepsy in its varied phases. Today the outlook of an epileptic is much more cheerful than of past years. This, I feel certain, is largely due to the scientific accomplishments in the diagnostic field.

From an objective point of view, the diagnosis of epilepsy is quite obvious. Its characteristic symptoms are so dramatic that even the layman can spontaneously recognize the condition. However, obvious facts do not satisfy the curiosity of a person attempting to learn the organic reason for the characteristic train of symptoms associated with this convulsion.

Generally speaking, the word 'epilepsy' is a convenient term describing, very indefinitely, convulsion. In a broader sense, it might be taken to include the eclampsia occurring with the toxemias of pregnancy, or, futher, those symptoms present in convulsions due to extreme alkalosis and hyper-insulinism. Included in this, we must keep in mind the true idiopathic epilepsy or Grand Mal and a minor attack known as Petit Mal, after our diagnostic store has been exhausted.

The history of these attacks must be regarded as of paramount importance. Not only should one endeavor to discover the manner in which these convulsions occur, that is, the type of aura which preceeds the attack, but if there are any focal manifestations as seen in the Jacksonian type of epilepsy. The onset of these convulsions when discovered to have been in existence since childhood, leads one to conclude that this type is different from one which makes its appearance in later life. History of previous head injury may be a key to the etiology of condition.

Frequently these so called epileptic attacks, have their onset at the time of the menarché in the female or during the adolescent stage of the male. Undoubtedy the etiology of this condition must be different from the epileptic attacks seen in an individual who has been exposed to excessive amounts of some chemical irritant such as lead or strychnine. Often a convulsion which will make its first appearance following surgery of the thyroid gland can be traced to hypoparathyroidism due to removal of the vital parathyroid glands.

Among the causes of convulsions which might be mistaken for epilepsy, one must consider hyperinsulinism, onset manifestations of infectious diseases in infants, and various metabolic disturbances, of which one is alkalosis due to hyper-ventilation.

Needless to say epilepsy is mimicked by many diseases independent of organic brain disease. Chief offender among these is the condition known as hystero-epilepsy. Here the problem resolves itself into a psychiatric one.

In reviewing the causes of epileptiform convulsions due to diseases of the central nervous system, we must include first the infectious diseases of the brain and its meninges. The various forms of encephalitis include epidemic encephaitis, Rocky Mountain spotted fever, and the bacterial encephalitides such as the pneumococcal, streptococcal and tuberculous. Epidemic meningitis whose cause is the meningococcus is also a disease which should be remembered. Of the virus diseases poliomyelitis, Guillian-Barre's syndrome, post vaccinal and post morbille are also to be reckoned with.

Vascular diseases of the brain may or may not produce symptoms which will result in an epileptiform convulsion. Arteriosclerosis, hemorrhage, and thrombosis of some of the more vital cerebral vessels can be placed in this group.

Neoplasms of the brain if located in the proper motor areas will frequently manifest themselves in an epileptic convulsion. In this group tuberculoma, gumma, and other infectious granulomas give a similar picture.

Depending upon what information is obtained from the history of any particular case, one can work up a more thorough clinical picture by means of certain laboratory procedures. If the history points to metabolic malfunctions as being the cause of the convulsion, the clinical laboratory will help us in determining the blood chemistry of the patient. It might be that low blood sugar exists and thus the diagnosis of hyperinsulinism can be thought of. The carbon dioxide combining power may give low reading and thus one is led to suspect a state of alkalosis. The blood calcium readings and serum phosphates determinations may give us a clue as to the state of the parathyroid glands. Examination of the urine for

toxic substances such as lead will show the presence of a chemical irritant.

If the convulsions are thought to be caused by some gonadal disturbance as seen at the time of adolescent changes, a complete examination of sex organs should be made. This must include gynecologic examination in the female to determine the size of the internal genitalia, or the absence of certain structures, or the presence of some organic change in the character of these organs whether it be a tumor or infectious condition. In females a thorough study of the periodic changes in the mucosa of the genital tract must be studied to see if it responds to the cycle patterns of normal menstruation. This can be done by microscopic smears taken at regular intervals and repeated for at least three months.

In the male a similar examination of the genitalia should be done. The size of the testes, their presence or absence, and microscopic study of their seminal products, the state of the prostate and associated accessory sex glands should be determined.

In both male and female the state of the hypophysis can readily be determined by X-ray examination of the skull.

Examination of the spinal fluid is of great diagnostic value for determining the etiology of a convulsion. In taking the spinal fluid one should determine if there is a block to the flow of spinal fluid by eliciting a Queckenstedt's test. The examination of the spinal fluid itself will help one conclude whether or not old hemorrhage is present by the absence of or presence of red blood cells. Also in this examination one should look for Froin's Syndrome. If the suspected etiology is infectious the spinal fluid will show the presence of bacteria or the chemistry of the fluid will show a lowered carbohydrate content.

When the lesion is suspected to exist in the central nervous system, X-Rays of the skull and spinal columns should be done. A flat plate of the skull is not sufficient in studying the brain, although much information can be derived from it. The presence of an old fracture with an associated dural thickening and callus formation can very often be the cause of epileptiform seizures. A case of this kind was recently found in our own clinic. Also from a flat plate of the skull abnormal states of the calvarium may be determined and thus another cause for the convulsions may be unearthed.

Along with a flat plate of the skull, ventriculographic and encephalographic studies should be made. With these tests one can determine the state and shape of the ventricles of the brain. Usually a tumor will cause a distortion of the ventricles. If there is softening present there will also be evidence of changes in the encephalogram. Developmental anomalies can also be detected by this test.

Recently a method has been devised which is of great diagnostic value, known as electroencephalography. By recording electrical potential differences of the brain known as 'brain waves' one can determine the presence of diseases by studying the tracings obtained. It appears that each disease has a particular pattern of tracings. Epilepsy, the idiopathic type, has a pattern which is different from that of the normal. This information also helps in the localization of the lesion.

Thus we have surveyed, in brief, the techniques involved in determining the etiology of epileptic convulsions.

Maimonides *(1135-1204), greatest Jewish physician of the 12th century would utter this prayer every day before he started on his medical rounds: "I begin once more my daily work. Be thou with me, Almighty Father of Mercy, in all my efforts to heal the sick. For without Thee, man is but a helpless creature. Grant that I may be filled with love for my art and for my fellow-men. May the thirst for gain and the desire for fame be far from my heart. For these are the enemies of Pity and the ministers of Hate. Grant that I may be able to devote myself body and soul to Thy children who suffer from pain. Preserve my strength that I may be able to restore the strength of the rich and the poor, the good and the bad, the friend and the foe. Let me see in the sufferer the man alone. When wiser men teach me, let me be humble to learn, for the mind of man is so puny and art of healing so vast. But when fools are ready to advise me or find fault with me, let me not listen to their folly. Let me be intent upon one thing, O Father of Mercy, to be always merciful to Thy suffering children.*

"May there never rise in me the notion that I know enough, but give me strength and leisure and zeal to enlarge my knowledge. Our work is great, and the mind of man presses forward forever. Thou has chosen me in Thy grace to watch over the life and death of Thy creatures. I am about to fulfill my duties. Guide me in this immense work so that it may be of avail."

* * *

"Mr. Anesthetist, if the patient can keep awake, surely, you can". . . Dr. W. B. L. Troter, English surgeon, deceased.

ALUMNI

The following early alumni have written briefly to tell us they are still in very active practice.

1891—Andrew Christensen.

1902—William Held.

1904—O. L. Ballenger.

1907—A. E. W. Jourdan.

1913—G. W. Rosenbaum.

1914

J. G. Barker is a member of the Belmont Hospital Staff. For the past twenty years, moreover, he has been associated with the Board of Education Parental School.

1915

George E. Kirby is doing surgery in Spring Valley, Illinois.

1917

H. Zaczeck specializes in internal medicine.

1918

J. C. Mandel sends us his local address but of activities—nary a word.

1921

R. N. A. Munoz promises a Quarterly article which is being written during the infrequent lapses in a busy E. E. N. and T. practice.

1922

Charles G. Slanec is also an E. E. N. and Throater.

1923

P. E. Sandwall, of Waukegan, is County Physician at Lake County Hospital.

1925

James A. Megahy is another of our local reticent alumni.

A. S. Kanne is practicing internal medicine here in Chicago.

1926

Matthias Marquart reports his specialty as neuropsychiatry. He hails from Augusta, Maine—formerly, a part of the Union.

Frank Sadowski tells us that work is plentiful in the vicinity of Fullerton Ave.

1928

Esther Rahn sees, according to our labored arithmetic, 1.1 patents every hour of the day (including Sundays and legal holidays) with a log of 821 cases seen in December 1941.

Edward C. Meyer takes pains to point out that he is located on the very northwesternmost tip of Chicago. Visitors are asked to use compass and sextant.

Irving N. Salewitz is practicing in Plymouth, Illinois.

N. B. Colombo sends us greetings.

1930

Paul A. Davis is busy with industrial surgery.

Harry I. Horner is a general practitioner.

1931

M. A. Chardkopf merely signs in.

1932

R. A. Crum would like to get the boys together for a ten year reunion. How about it, you who have just completed one decade in practice? Address Dr. Crum, 918 Main Street, Mount Vernon, Illinois.

Herman H. Rhoad is medical director for a large corporation and is located on Fifth Avenue in the heart of Little Ol' New York.

Charles Pava affirms his presence.

R. F. K. Jordan specializes in surgery and is located in Pekin.

Francis X. Graff heads his Draftee Examining Board and hobbies in gladiolos hybridizing, flying, building a new home, Elk, K. of C., Germania, Sportsmen's Club; he mentions also junior membership in the American College of Surgeons.

W. J. Kutas sends us a card.

Evelyn A. Rinaldo Neufeld is practicing locally.

J. V. Sanovic is doing quite well out in Markham, Illinois.

1933

Andrew Nagy is "enjoying a general all around practice."

C. O. W. McCreedy besides serving as President of the Mercer County Medical Society indulges in his passion—real estate. He buys old houses, fixes them up, and sells them for a tidy profit.

H. A. Tyllas is on the staffs of the Woodlawn, St. Bernard's, South Shore, and Provident Hospitals.

H. Inouye is practicing in Glendale, Arizona.

Carmen Scudieri shows a laudable interest in The Quarterly.

Gayle Laymon reports his prowess as a private pilot and a gentleman farmer.

F. P. LeVan also flies his own plane "for business and pleasure." Are Drs. Laymon and LeVan modernizing the stork?

Jacques I. Hootnick is Associate Surgeon, South Chicago Hospital and is Medical Examiner for several life insurance companies.

W. W. Patrick is most interested in industrial medicine.

1934

Paul A. Garnon is examining physician for Selective Service Board No. 2, Livingston County.

Andrew Krajec writes us now from West Salem, Illinois.

S. K. Lewis apparently devotes a good deal of his time to public service. He is Vice-President of the Elmhurst Hospital Staff.

I. Mirikitani has received his license to practice in Hawaii.

John J. Pitzagerro writes us he is being kept busy.

Herbert Rasche is in general practice out Maywood way.

1935

L. I. Greenspon has his office in Chicago Heights.

Marshall D. Kerwin is also in local practice.

Reuben Marbell keeps us posted. Married 1½ years he is now the father of a son of whom he is exceedingly proud.

A. I. Podalsky sends us a list of his activities from Arizona: Secretary-Treasurer, Yuma County Medical Society for 3 years; Chairman, Medical Preparedness Committee in National Defense of southwestern Arizona; State Association Economics Committee; Pediatrics Consultant, M. C. H. Clinic.

Philip A. Shultz lives and works in Chicago.

I. A. Sklar specializes in industrial surgery.

V. M. Timm is a Post Secretary of the Southern Illinois Tri-County Cociety and is on the staffs of the Illinois Central and Fisher Hospitals.

Walter H. Young is Draft Board Examiner in Maywood.

Jacque R. Chalfin is district surgeon for several railroads and examines applicants for at least a half dozen insurance companies. All this activity centers around Venice, Illinois.

H. C. Coblens is an industrial surgeon.

S. S. Gersten locates his general practice in Rockford, Illinois.

D. T. Mastinanni is on the staff of the Columbus Hospital and is physician for the Bureau of Public Welfare of Cook County.

1936

J. Rogers Hood is associated with Dr. C. C. Rogers, former member of the Board of Trustees and Professor of Neurosurgery at Chicago Medical.

W. J. Poshatashe operates, together with Dr. W. H. Beazky, the Silsbee Clinic in Texas.

1937

Meyer M. Mandel recently moved to Tucson after practicing in Wilcox, Arizona for 3 years.

Irving S. Schipper, located in Lincoln County—Galesburg—has had articles in the Illinois Medical Journal, August 1938 and May 1939.

Eugene Joseph Sodaro functions on the Junior Staffs of West Lake and Mother Cabrini Hospitals. He is also on the Selective Service Board of Rush Medical Clinic.

1939

Sam S. Cooper serves on the staffs of Breckenridge and Selon Hospitals in Austin, Texas. He is also coordinator of the local draft board and County Health Officer.

Jacob Leftoff is House Physician at Long Beach Hospital, New York.

Edward G. White, of Springfield, Mass., is doing considerable industrial work at several factories with never a dull moment—thanks to the police and general emergencies.

1940

Benjamin Lipnik is interning at E. C. Hazard Hospital in New Jersey.

Frederick G. McKerr is member of the Board of Trustees, Hillcrest Hospital and holds the office of City Physician in Pittsfield, Mass.

N. A. Thompson merits hearty congratulations for to him was born a son—November 3, 1941.

Meyer Silverman sends us a most inspiring letter and a realistic glimpse into modern small town practice.

1941

B. G. Gill has secured a residency at St. Joseph's Hospital in Joliet.

Israel Greenblatt is in New York City interning.

Irwin A. Smith is located in Far Rockaway, New York, and is also interning.

Frank B. Warner is at Memorial Hospital, Danville, Virginia.

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ABSTRACTS

"THE EFFECT OF LOWERED TEMPERATURES UPON THE GROWTH OF THE FIBROBLAST IN VITRO—ITS APPLICATION TO WOUND HEALING"—M. E. Cano, M.D., and L. W. Smith, M.D. *Journal of Laboratory and Clinical Medicine* 27: 460-464, January, 1942.

Drs. Sano and Smith report on the behavior of the fibroblast at different temperatures. At body temperature (37°C) and under ideal culture conditions, the fibroblast multiplies rapidly and produces large, elongated, healthy appearing cells with obvious coarse fibroglia fibers. As the temperature is lowered from 37° to 30° to 25° to 20° etc., the rate of growth of the fibroblast is progressively retarded. The cells are smaller and the intercellular substance decreased. In addition, at the 24°-26° range, the cells show most resistance to environmental factors.

What does this mean clinically? To quote the authors: "On the basis of these studies a temperature range of 25° to 30° C. would seem to be optimal in respect to wound healing. Under such circumstances one logically might expect that the healing process would be somewhat slower than at body temperature, but that the amount of collagen production, with its subsequent ugly contraction and scar formation would be reduced appreciably."

The article ends with a plea for the wider use of local hypothermy in problems relating to the healing of wounds. Good clinical results have already been achieved in the treatment of ulcerative breast carinoma and diabetics and traumatic amputation stumps.

"THE UTILIZATION AND EFFECT OF ADDED DEXTROSE IN CASES OF CONTROLLED AND UNCONTROLLED DIABETES" — J. A. Greene, M.D. and L. W. Swanson, M.D.—*J. A. M. A.* 118: 364-368, January 31, 1942.

The etiology of diabetes mellitus is still far from settled. The two general theories around which most of the controversy seems to be ranging today are:

1. Decreased ability to oxidize dextrose.

2. Disturbance in the liver which increases the output of dextrose. To test the validity of these theories, Drs. Greene and Swanson administered extra carbohydrate without extra insulin to diabetics. Of the controlled diabetics, only 1 out of 56 failed to utilize the added sugar, whereas 18 required less insulin. Of the uncontrolled diabetics, only 1 failed to utilize the added sugar, whereas the urine of 15 promptly became sugar-free.

Further studies showed there was no uniform response of blood sugar levels and that neither oxidation of the added sugar nor increased pancreatic secretion of insulin explains the utilization of the added carbohydrate. The authors believe that depletion of the sugar stores of the body further reduces the ability of many diabetics to utilize dextrose and that correction of this depletion improves the diabetes in such cases.

"WAR INJURIES TO THE HEAD"—Ralph B. Cloward, M.D.—*J.A.M.A.*, 118 267-270, January 24, 1942.

Dr. Cloward reports from Hawaii on the treatment of penetrating wounds of the head as seen among the first American casualties of the present war.

Preliminary treatment, at the receiving station, consisted of the following:

1. Clipping of the hair about the wound
2. Cleansing of edges of wound with soap and water
3. Hemostasis with clamp, local pressure or rubber tubing around the head
4. Wound filled with sulfanilamide powder
5. Temporary dressing applied

On admission to the hospital the patients are examined neurologically, X-rays are made and tetanus antitoxin is given. If signs of shock are present, intravenous saline, plasma or whole blood is administered. *No infection was encountered in any of the cases receiving preliminary treatment.*

The operation is done under local anaesthesia. A thorough debridement and cleaning is done, the foreign body removed if accessible, all bleeding stopped the tract filled with sulfanilamide powder, and the dura and skull repaired. No postoperative complications were encountered within the first 48 hours, with one exception. A. HOROWITZ

A SPECIFIC PRECIPITIN ANTISERUM FOR CARCINOMA PROTEIN—L. S. Mann and W. H. Welker. *American Journal of Cancer,* 39: 360, July, 1940.

In the past attempts to make specific antisera for normal and malignant tissues, the stumbling block has been that blood cannot be completely removed, with the result that the antisera reacted with the blood of the recipient. Attempts to remove the blood antibodies by absorption resulted in a great loss of tissue antibodies also. Spinka and Weichselbaum, by

fixing the finely ground washed tissue on aluminum cream and injecting the material intramuscularly, found that rabbits lost the antibodies for blood in a period of one to six months, whereas the titre for the tissue proteins remained high.

Gastric carcinoma, from which normal tissue had been dissected, was ground in a ball mill for forty-eight hours, filtered through cheese cloth, and the filtrate washed in a high speed centrifugal machine until the supernatant fluid no longer gave a positive biuret test. The tissue was absorbed by aluminum cream and injected into rabbits.

The antiserum thus prepared showed a positive precipitin reaction with the original suspension of malignant tissue, and the serum of patients with gastric carcinoma (thus showing that the carcinoma put out a specific protein into the serum) did not react with normal fresh human tissues, with the exception of thyroid, and is species specific.

Although there may be cross precipitation between different types of carcinomatous sera, i.e. gastric and cervical carcinoma, and the specific antiserum for the carcinoma protein found in the serum of these patients, it is thought that the malignant protein is specific, that the use of this antiserum is an aid in diagnosis of cancer, and perhaps will possibly be a factor in specific therapy of cancer.

FURTHER STUDIES ON ACTIVE MILK INFLUENCE IN BREAST CANCER PRODUCTION IN MICE. John J. Bittner. *Proceedings of the Society for Experimental Biology and Medicine,* 45:805, Dec., 1940.

The author summarizes the published evidence and presents new evidence to the effect that the milk influence in inherited breast tumor production in mice is an actual and active influence. Not only do the offspring of a non-cancerous strain of mice develop breast cancer when nursed by a cancerous mother, but the incidence of cancer in the cancerous strain decreases when the offspring are nursed by a non-cancerous mother.

Breast cancer may be developed in a non-cancerous strain by the inoculation of spleen, thymus, and lactating mammary gland tissue from a female of the cancerous strain. The same result is obtained when four week old females are fed breast milk from lactating females of the cancerous strain. This "breast cancer producing influence" is an active influence and not the absence of some factor in the milk.

H. SLOAN *and* F. B. WARNER

Chicago, Ill.
February 6, 1942.

To the Editor:

I have been in the school since the inception of the idea of a school publication and I have been a very interested spectator of the progress of the magazine since its first issue. With justifiable pride I can say it is an excellent publication.

I can also point, with some degree of satisfaction, to the obvious progress the magazine has made in gradually developing from a pseudo-scientific journal to an honest-to-goodness student publication of a semi-scientific nature, with enough of non-scientific material to give it the savour of student effort. I refer specifically to such articles as "Notes from an American Student in the Orient", and Sol Wollen's humorous article. Such stuff certainly detracts from the sophistication of a purely scientific journal (God knows we have enough of those—more than we can read) and gives our journal the home-cooked taste it should have.

I might add that several non-partisan observers to whom I have shown our magazine have remarked upon the general excellence of publication as a whole, but have commented very favorably upon the choice of material, both scientific and non-scientific. Our magazine evidently has a universal interest as well as a purely scientific and academic one, a true indication of its worth.

By the way, who is the American student in the Orient? Is the article fictional, or is it factual? I am quite curious and not a little interested in knowing.

Mel Smoley, Soph.

ORGANIZATIONS

ASSOCIATION OF INTERNES AND MEDICAL STUDENTS

On December 27-29, 1941, the joint National Convention of the Association of Medical Students and the Interne Council of America took place at the International House on the University of Chicago Campus. At a time when the last peaceful stronghold of democracy was being attacked by the fascist powers of the world, medical students and internes, representing the junior section of the medical profession, gathered to formulate their role in the nation's effort for victory.

The joint meeting was one of the most momentous in the history of the two organizations. The three hundred-odd delegates and visitors saw the formation of a new joint organization—the Association of Internes and Medical Students—whose objects as stated in the preamble of its new constitution are: "This association shall concern itself with the ethical, social, humanistic and educational aspects of medicine, in order that its members may be better equipped to serve themselves, their profession, and society." They also saw the unanimous acceptance of a pledge of allegiance to the President of the United States to ". . . give everything, our energy, skill and lives to carry through all the duties we are called to perform in assuring victory to our just cause in this war;" and joined with the newly elected president of the joint organization, Thomas L. Perry, Jr., of Harvard Medical School, in urging the medical students and internes of the country to join the Medical Reserve Corps of the Army.

Among the long list of outstanding speakers, representing all sections of the medical profession, government agencies and the armed forces of the nation, were Dr. Morris Fishbein, Editor of the Journal of the American Medical Association, Dr. W. D. Cutter, of the Council on Medical Education and Hospitals, Dr. Fred Zapffe, secretary of the Association of American Medical Colleges, Dr. Arthur Bachmeyer, also of the Association of American Medical Colleges, Dr. Herman Bundesen, President, Chicago Board of Health, Col. Charles G. Hutter, liaison officer from the Medical Corps of the Army to the American Medical Association, Commander Mott of the Navy Medical Corps, Dr. Victor Johnson, Dean of the Medical Students of the University of Chicago, Dr. Henry E. Sigerist of Johns Hopkins University School of Medicine, Dr. Charles Sumner Bacon, of the University of Illinois School of Medicine, and Dr. Alfred Korach of the University of Cinncinatti Medical School. At the closing banquet, representatives of the Allied governments fighting the Axis included Chang Lok-Chen, Chinese Consul-General of Chicago, Mr. D. I. Zaiken, Russian Vice-Consul of New York City, and Mr. R. W. MacKay, representing the British Embassy.

The general theme of the convention, "Health and Defense of the Nation" took on added significance as the delegates discussed ways of implementing the national effort to defeat the aggressors who threaten all of the magnificent gains of the American medical profession during its years of development under the American system of Democracy. At the panel on Medical Education, it was urged that the medical curriculum and internship be streamlined to meet the urgent need for medical men; that courses in Military Medicine be included in the curriculum and that government aid be extended to all medical schools requiring assistance so that the high standards of medical education be maintained. The health, food, housing, recreational and financial problems of medical students and internes were discussed at great length at the panel on Medical Student and Interne Welfare. In the panel on Medical Aid to the Allies, the need for such aid was thoroughly aired and provisions made for the organization initiating campaigns to raise funds for the American Red Cross, and the British, Russian and Chinese Relief Agencies. At the panel on Medical Preparedness and Civilian Defense plans were outlined to train the medical student and interne in first aid and its instruction to the civilian population. The organization of hospitals into catastrophe squads and mobile hospital units was presented in detail. Cooperation with the Armed forces was discussed at the panel on Medical Preparedness and Military Defense.

With this very eventful convention as its beginning, the Association of Internes and Medical Students is looking forward expectantly to a year of great activity and development and doing its share in the nation's victory effort.

NU SIGMA CHI

The Nu Sigma Chi Fraternity at The Chicago Medical School are upholding their annual traditions by having a series of smokers and informal get-togethers. These gatherings are held with the sole purpose of bringing the new pledges in closer contact with the active and alumni brothers—both educationally and socially.

The annual pledging is well on its way under the skillful guidance of Maurice Sanderson, pledge captain. Maurice Sanderson has promised a gala program for the informal initiation of the new pledges, to be followed by the annual formal pledge dinner dance to be held sometime in April where they will be presented their keys and certificates by Dr. J. J. Sheinin.

With the fine work of Grand Regent V. Slepikas, L. Seno, and many others, Nu Sigma Chi shall announce a new policy adopted by the fraternity. This brilliant surprise program has but one aim and that is to bring the brother members still closer to one another. It has been gone over completely to the finest details and shall be presented within the current year.

Thus in closing, Nu Sigma Chi maintains their active place in the organization of The Chicago Medical School since the founding of the fraternity by Dr. M. G. Spiesman.

PHI LAMBDA KAPPA

The roster of the Alpha Rho Chapter of Phi Lambda Kappa has been augmented by the admission of many pledgees to membership at the February Initiation. Held amongst impressive surroundings, it was attended by the Grand Superior, Dr. B. B. Weinstein, of New Orleans, La., and Dr. Harry Epstein, the Grand Scribe of Pittsburgh, Pa. Many other friends and alumni of Alpha Rho were present, among them being Drs. Brodsky, Poticha, Sered, Block, Gaberman, and Kaplan. After the formal induction, refreshments were served. With the admission of this new group, the continuance of the fine work done by Phi Lambda Kappa at The Chicago Medical School is assured.

The series of dinner meetings has continued with speakers being Dr. H. Sicher of the Department of Anatomy, and Dr. Samuel Taub, Professor of Clinical Medicine. Both talks were received with much enthusiasm by the fraternity group.

Frater Robert D. Redston '43 has announced his engagement to Miss Leona Bell of New York City. Frater Samuel Rosen '43 has announced his engagement to Miss Irma Cohen, of Chicago.

The Convention, held at Philadelphia during the winter vacation, voted the Alpha Rho chapter Honorable Mention in the Contest for the Best Chapter in the Phi Lambda Kappa group. This award was received at the convention by our Worthy Superior, Frater Edward Einhorn.

The future activities planned by Alpha Rho include the annual Spring Formal Dinner Dance, and the annual Picnic, along with the usual dinner meetings at which prominent physicians of Chicago will speak.

THE SURGICAL PROBLEMS OF WAR

(Continued from page 8)

that proper handling of other wounds require, namely: cleaning up the burn, removing devitalized tissue and converting it into a closed wound in order to keep it from getting secondarily infected and to prevent too great a loss of blood plasma by exudation. Protection against the latter is best accomplished by the application of one of several substances. These are: 5% isotonic tannic acid solution or ointment, 10% silver nitrate and tannic acid solution combined, and the anilin dyes. Of the anilin dyes, the triple dye treatment has been found best in that it is antiseptic, analgesic and stimulates epithelialization with a minimum of scar formation. With this basic treatment, the extensive burns are then covered by an appropriate skin graft. Grafting is done as early as possible, usually within two weeks, or before too much connective tissue proliferation occurs. Where shock threatens or has developed, adequate plasma transfusions are promptly given.

Shock and Its Treatment: In trauma of civilian or military origin, shock is the one important problem that calls for immediate treatment if heavy casualties are to be avoided among the wounded. This serious complication is not a state but a process by which blood loss occurs through tissue asphyxia resulting from inadequate blood flow, and both of these then set up a vicious circle. The most frequent causes are blood loss, crushing injuries, burns, pulmonary edema and poison gases, and severe infections like peritonitis. The loss of blood volume is due to blood loss as in hemorrhage or loss of blood plasma as in burns and crushing injuries. The primary need in such emergencies is to replenish the volume of circulatory fluid with identical material. The widespread and successful use of plasma and of blood in these states is already well known. The urgent and large scale needs for military and civilian casualties has led to the formation of blood banks and plasma and serum centers. Because of difficulties with transportation, storage, and application, preparing it in a suitable dry form has proved effective.

In the German army the soldiers are assigned to detachments according to their blood groups so that if any member in the detachment needs a transfusion he may receive one from a member of his detachment. A second method employed both by the military and civilian defense areas is to list all universal donors. These form about 45% of the entire population. These then can serve as universal donors in emergencies and

if one is careful to rule out those with high titers of isoagglutinins, the severe reactions can for the most part be eliminated. Estimation of the loss in blood volume and therefore, the amount of fluid to replaced, can be made by a simple formula devised by a British casualty unit. Taking 40 cc. blood per lb. of body weight as normal, then

$$\frac{\text{Blood volume (cc) before plasma}}{\text{Blood volume (cc) + plasma (cc) given}} = \frac{\text{Hematocrit on Hb \% after plasma}}{\text{Hematocrit on Hb \% before plasma}}$$

Another complication of clinical interest recently described in the literature is the development of uremia and anuria following crushing injuries. In these patients, after apparent recovery scanty urination develops in a few days, followed by anuria, marked edema of the crushed part, sharp rise in blood nitrogen products leading to death on the sixth to eighth day. Some cases recover. The urine in all these cases shows blood and coarse brown granular casts. Studies of this urine revealed that ordinary hemoglobin was not present, but the modified form of it—myohemoglobin was present. This latter pigment is derived from the injured muscle, is absorbed and precipated in the renal tubules in the same manner as hematin after a hemolytic transfusion reaction. To guard against this development, administration of fluids and alkalies is necessary immediately after such injuries in order to keep this substance from precipitating in the kidneys. Warmth, Trendelenberg position, morphine, and oxygen are further important adjuncts in the treatment of shock. When blood and plasma are not available, reliance must be placed on giving physiological saline solution, glucose, or a non-toxic colloid solution, such as 5% gum acacia (sodium arabinate). The latter proved very effective with the British in the first war. Recently a search has been made for other colloid non-toxic solutions and one that may prove satisfactory is pectin.

Pectin is a hydrophilic colloidal carbohydrate of high molecular weight, non-antigenic, and therefore not prone to lead to anaphylaxis. One gram of pectin when dissolved in 200 cc. of water makes a solution whose osmotic pressure and viscosity approaches that of blood. It is fourteen times more efficient gram for gram when compared to gelatin, acacia, or isinglass and is easily eliminated by the kidney without producing any cumulative effects. It must be properly prepared, sterilized, neutralized, and tested for hemolytic action and proper viscosity before use intravenously.

In summary, the treatment of shock may best be epitomized in the following scheme of Freeman:

SHOCK

Cause	*Treatment*
Hemorrhage	Transfusion { saline, glucose, plasma or serum
Dehydration	Fluids
Pain	Morphine
Cold	Warmth
Fear	Reassurance
Asphyxia	Oxygen
Exhaustion	Rest

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FURTHER NOTES FROM AN AMERICAN MEDICAL STUDENT IN THE ORIENT

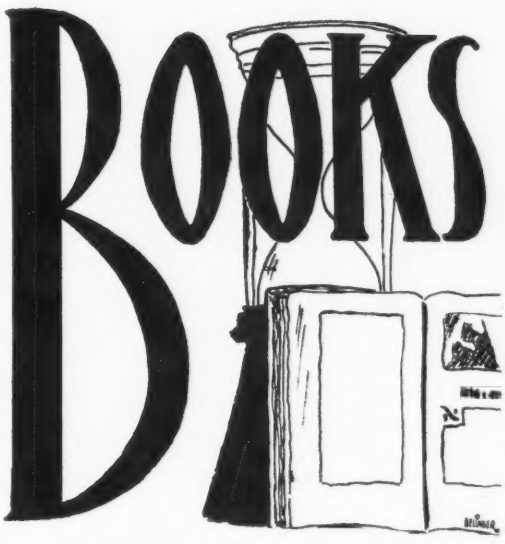
(Continued from page 16)

***Hong Kong,* March 19, 1941**

There has been an outbreak of cholera in the colony, and, of course, I went for an injection. It is good for three to five months; so I expect to get another in June, when I go to my clinics.

A few nights ago they had practice in shooting the big guns. It certainly sounded like the real thing. Lots of windows were shattered, and that, as far as I know, was the extent of the damage.

Herman L. Weisberg



ANATOMY OF THE NERVOUS SYSTEM, by Olof Larsell, D. Appleton-Century Company, New York-London, 1942.

Larsell's book gives an excellent account of our knowledge on the central nervous system. The inclusion of a description of the higher sense-organs is most welcome. The illustrations, especially the atlas added at the end of the book are, for the greatest part, very good. The text is well written. Still it is, in my opinion, not a book "intended primarily for medical students" (Preface). It will be a book studied to great advantage by students of neuroanatomy as a specialty or by advanced students of medicine who want to specialize in neurology.

The main difficulty a medical student will encounter in using this book, "as an aid in organizing the complex structure of the nervous system" (Preface), is the custom followed by Larsell to break the description of the central nervous system up into a series of descriptions of the different parts of the spinal cord and brain. If all the tracts of the spinal cord are described after the short macroscopic description the student is already lost. He cannot possibly understand any of those tracts which arise or end in parts of the brain not yet discussed. An understanding of the great sensory pathways, for instance, is only then given to the beginner if they are discussed in their whole extent and together. Then it is possible to point out not only the differences in their behavior which are practically so important, but to point out the common properties too. If the pyramidal tract is not described as a whole and with all its relations, which must be evaluated for practical application, then the student is forced to build the whole out of the parts scattered in many chapters. This needs so much experience that the average student will be unable to do so.

Some of the chapters are in my opinion too short and concentrated. Especially the discussion of the visceral system could be enlarged to great advantage. A chapter on the meninges and the blood vessels of the brain should be added.

Many illustrations are excellent, for example, the colored cross sections through the spinal cord and rhombencephalon. It is, however, disturbing for the beginner if in some of these sections some tracts are left out, which are seen in other drawings. We find in figs. 109 and 112 the rubrospinal and the lateral spinothalamic tracts but they are omitted in figs. 110 and 114. Other diagrams in black and white are too complicated to give a clear picture. Such diagrams should be broken up in two or even three. An example is fig. 120 showing vestibular and cochlear connections in one diagram.

Criticism of a book which is evidently written by an author prominent in his field is permissible only if it tries to be constructive. It is this thought which leads me to express some suggestions based on long teaching experience. The hardest task for the medical student is the correlation of the gross and the structural anatomy of the central nervous system. Only if he can do this, is he able to understand the problems of neurology with which he will be confronted in his clinical years. To achieve this aim, the student should be acquainted first with the gross anatomy of spinal cord and brain as a whole by description of the outer and inner surfaces with special emphasis on topographical relations. Then all the centers should be carefully discussed establishing a firm correlation between these nuclei and the surface structures. Then and then only the tracts should be explained grouping them into systems and taking each in its entirety. Again the relations of these tracts to the gross structures and to each other have to be carefully gone into. The functional aspects, of course, are essential and so are clinical applications. These should in simplified form include as many typical lesions as possible, starting not from the clinical but from the anatomical picture (as it has been done by Larsell). Another important consideration is the necessity of simplifying the enormous complications of the central nervous system. This is done efficiently in the diagrams but not in the text. If the author does want to give a

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simplified account and still does want to give a complete description then judicious but extensive use should be made of small print. In the diagrams the use of more colored figures are necessary. The higher cost of such illustrations can be offset, to a certain degree, by the reduction in the number of figures which is thus made possible. The illustrations of the gross anatomical structures should be selected in such a way that they represent wherever possible preparations which the student himself will make in the course of his laboratory work.

Harry Sicher, M.D.

(Continued on page 39)

CHEMISTRY IN WARTIME

(Continued from page 23)

to produce airplane gas of exceptionally fine quality and the unsaturated gases may be converted into butadiene which can be methylated to give isoprene or chlorinated to give chloroprene, and isoprene and chloroprene will polymerize to give excellent elastomers. And here even the physical chemists play a part since they have been able to freeze out and fractionate these waste gases by using liquid air or liquid helium, and to replace the old cumbersome and expensive compressors for making the liquid air and liquid helium, they have invented rotary compressors with an R.P.M. of 30,000 which do the job much better and in less time.

During the past two years some researches have been carried out in the laboratories of The Chicago Medical School to make a new kind of elastomer. It was found that proteins such as casein and gluten react with liquid ammonia to produce plastics of great hardness and high tensile strength, but too brittle to withstand a very sudden and intense shock. In order to reduce the brittleness of these plastics, it was decided to try mixing them with substances having elastic properties. However, elastomers that are already formed, such as rubber and thiokol, cannot easily be mixed with powdered proteins in liquid ammonia. It was found on trial that rubber latex will coagulate, that isoprene will polymerize, and that sodium sulfide, sulfur and thylene chloride will form thiokol in liquid ammonia. It was further found that the rubber could be cold-vulcanized in liquid ammonia by the addition of flowers of sulfur or ammonium sulfide, and that no stickiness would develop for at least two years. The third step was an attempt to combine the plastics and elastomers. This proved to be possible, and a new type of compounds, called plastic-elastomers, were prepared which had many of the desirable properties of the other two classes. The materials used were for the most part domestic and inexpensive, and are already being produced in large quantities. The many uses of such plastic-elastomers at a time when natural rubber cannot be purchased in sufficient quantities on the open market is obvious.

War, in spite of its terrible consequences, acts as an incentive to research and spurs scientists on to greater efforts. Napoleon Bonaparte foresaw the great need of preserving cooked foods for armies on the march. He offered a rich prize to anyone who could develop such a process. The development was made, and it consisted simply in placing the cooked foods in air-tight glass containers at the temperature of boiling water. The glass container has been replaced largely by the tin can or plastic can and we now have the "luscious" corned beef and salmon for soldiers who rather thoughtlessly refer to them as "corned Willie and goldfish." During World War I, Haber brought to final development his process of synthesizing ammonia from hydrogen and the nitrogen of the atmosphere, and from this same ammonia can be prepared explosives or fertilizers. At about the same time Dakin introduced the use of hypochlorous acid for disinfecting deep wounds, and recently, during World War II, Long has described the very efficient use of sulfanilamide as a dusting powder for treating the wounded at Pearl Harbor. Shakespeare wrote that "The evil that men do lives after them; the good is oft interred with their bones." But with scientific discoveries the reverse is often true, and researches and developments made during the stress of war times will be aiding mankind long after the final order is given to "stack arms and turn in marching equipment."

MARIHUANA—THE NEWER ASPECT

(Continued from page 15)

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WAR AND CULTURE

(Continued from page 5)

istically, but we cannot act intelligently. The present conflict is the climax of historical developments of which the origins reach far back and we cannot understand it unless we are aware of these processes. History does repeat itself. Germany again overran France following the old plan of von Schlieffen. Russia is defeating Germany very much along the lines of Kutusov's tactics and recently an attempt was made to revive the old method of "Copenhaguing" a fleet. The reconstruction of the world after the war will call for a mobilization of all resources of historical scholarship we possess, and it is therefore extremely important that the work that is going on at the moment be not interrupted. Studies that may seem far remote from the present problems may all of a sudden become of very acute interest.

What has been said of history applies also to other social sciences such as economics, sociology, anthropology and geography. We must admit that the present war is not merely a struggle for markets, but that deep social and economic issues are involved. The world has changed in the last hundred years. We live in a highly industrialized, highly technical and specialized sociey that calls for solidarity. We depend on each other for our welfare more than ever. After two centuries of enlightenment the day will come when the people will refuse to produce anarchically, in fits, following the whims of a stock market, in periods of boom and depression. They will call for the scientist to replace the gambler and will refuse to accept economic crises as natural catastrophes. They have assumed the duty to work, but they will claim the right to work. Hitler would never have obtained a following if he had not succeeded in giving his people an amount of social security for which they were willing to sacrifice their liberties.

Poverty still is the curse of mankind. Wherever we attack a problem, in every country, we encounter this seemingly unsurmountable barrier. It can be overcome. We already possess the technology that permits us to do this, and science is giving us new weapons every day. What we need are adjustments in the social organization.

The cultural fields most likely to suffer from the war are the humanities and the arts. To the superficial observer they may seem a luxury that a country cannot afford in times of emergency. Nothing could be more wrong. Studies in the humanities are like those in "pure science" which are pursued for their own sake without any regard for practical applicability. And yet many such studies have led to great practical reults. In the same way, studies of pure scholarship may prove to be of great practical value. England, France, Germany and Italy developed strong schools of Oriental Languages. They were centers of research investigating the languages, literature, history and institutions of the countries of the East. They also served for the preparation of consular officials, missionaries and other persons who intended to live and work in the Orient. We have neglected developing such a school, and yet there is no doubt that at the present moment it would render invaluable services.

A great country like the United States with extended international relations never knows when it will need expert information on Eastern European, Asiatic or African affairs.

It would be perfectly stupid to neglect German, Italian or French studies because we dislike the present rulers of these nations. The great cultural values with which they have enriched the world so lavishly are timeless and will continue to exert their creative power when the memory of the present rulers will be a mere shadow. Quite apart from the cultural value of such studies, they have right now tremendous practical importance. Sooner or later we shall sit at the conference table with the delegates from these nations, and we shall face the task of rebuilding the world together. The more we know of each other, the more intelligently we shall be able to act. We shall need information, not only about their geography and economic conditions, but also about their psychology as it reveals itself in their literature which becomes accessible only through the language. I think we are now paying a high price for having neglected a more careful study of Germany. If we had learned from past mistakes, we would now crowd the German departments of our universities.

As was said before, war is to a society what a serious illness is to an individual. It suddenly interrupts the normal rhythm of our life, suddenly breaks in upon our daily routine. The proximity of death sets the mind in motion. We suddenly see problems that we never had the time to consider. Accepted values are re-evaluated. Has our life been what we wanted it to be? Have we been true to our principles? If we have failed, what can we learn from our failures and how shall we live in the future? A serious illness has been the turning point in many an individual's life.

In a similar way, war interrupts the normal life of

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a nation. The sudden emergency that breaks in like a natural catastrophe threatening destruction calls for a careful and sincere analysis of the nation's past and present, and for a re-affirmation of principles. Has it lived up to its great traditions? Has it merely paid lip-service to them or has it progressed in a creative way approaching and solving new problems in the spirit of its traditions? Is it prepared for the future, not only for the war but for the world that will follow it?

Paradoxical as it sounds, the most powerful makers of history are not the statesmen nor the generals, but the philosophers. There would be no United States without the philosophers of the period of enlightenment. Napoleon's power was due not so much to his military genius as to the fact that he represented the ideas of the French Revolution. Karl Marx wrote a book in the library of the British Museum and the result was the Soviet Union. The philosopher is a product of his time, to be sure, of the society of which he is a member. He is not a specialist, but using the results of specialists he studies the world in its entirety and is able to formulate the views and aspirations of the people. What millions of people only vaguely feel, he can express in words and put into a system. Once formulated, a philosophy becomes a powerful driving force. The most formidable weapon the United States possesses in this war is not its Navy, not its Air Force nor its Army, but its Declaration of Independence and Bill of Rights.

The philosopher is the nation's intellect. He thinks and is able to formulate thoughts. The voice of the people that expresses its emotions, its joys and sorrows, its hopes and fears, its anxieties and elation, is the artist. The writer, the poet, the painter, the sculptor, the composer, they all hold a very important place in society that becomes still more important in times of stress and strain. In such times they must live still closer to the people, working and feeling with them. They have the gift of expression. Their voice, their works liberate, stir, elate, or express the anguish that many feel. Deep as an emotion or an experience may be, it passes and is soon forgotten unless it has found artistic expression.

A good test for the justice of a cause and for the creative forces it possesses is to be found in the artistic manifestations it produces. The Spanish war was a good example. The Loyalists fought against a coalition of Fascist and fascistically inclined powers for political and social justice, for the liberation of the people from the bonds of poverty, disease, ignorance and superstition. They gave their blood to build a better world for their children. Illiterate soldiers learned to read and write in the trenches between battles. Schools and nurseries were built while the country was fighting for its very existence. There is no wonder that on the Loyalist side there was an outburst of poetry while nothing came from the Fascist side which was fighting for the preservation of a rotten status quo. I do not know any more stirring and moving document that the *Romancero General de le Guerra de Espana.* The Fascists could execute tens of thousands of people, but they will never be able to kill these verses and songs. They live in the hearts of the people. With these songs on their lips the people of Spain will rise again and this time will succeed in liberating their country.

The preservation of culture and of all cultural activities in a period of national emergency is a task the importance of which cannot be estimated highly enough. Our schools, libraries, museums, conservatories, theaters and studios are arsenals, too, and the people working in them are soldiers, also, fighting for the common cause. The cost of maintaining cultural institutions is infinitesimal compared with the costs of actual warfare. The benefits derived from them are endless and the attempt to curtail funds for cultural activities would be suicide.

Mere maintenance of what we possess, however, is not enough. In times like these, history moves very fast. Stagnation means retrogression. We must advance to keep abreast of the march of history, and this requires honest, courageous self-criticism.

Today the issue is clear. We want to defeat not only German, Italian and Japanese imperialism because they happen to clash with our own economic interests; we want also to defeat Fascism. We do not want to be ruled by a political philosophy that denies equal rights to all men and women, to all races and creeds, by a philosophy that denies that fact that the people are able to govern themselves. We want also leaders, but not sultans. We refuse to live in a world of fear and apprehension, and we cherish the basic rights that the American Constitution guarantees because we are willing to accept the duties they imply.

We must be aware, however, that there is Fascism not only in Germany, Italy, Japan and their satellites, but that conditions which lead to Fascism exist in every country. Fascism must be exterminated not only on foreign battlefields but on the home front as well. If we abhor Hitler's racial policy, we must not apply it at home. No institution that discriminates against fellow-citizens on account of their race, creed, or sex has a right to use the word democracy. If we abhor

Hitler's labor policy, we must give labor its rights. If we are truly convinced that our form of government is the best—and I for one am convinced that democracy is the only form of government worthy of man — we must stop being afraid of having the government assume increasing responsibilities. We must stop being lenient toward graft, corruption and inefficiency and must consider them as they really are, namely, treason, a betrayal of democracy. Democracy is challenged today. It can and will survive, but this will require not only that we win the war but that we have the intelligence to make the necessary social and economic adjustments after the war.

We abhor Hitler's regimentation of all cultural activities. The researcher and the artist feel free in this country. Nobody prescribes what they have to do. But are they truly free? Is there not a regimentation of a more subtle kind, by the exigencies of the market? Can the poet or the painter make a living if he does not conform with the taste of the propertied class? In other words have we created the conditions for culture, in city and country? Are we paying adequate salaries to our teachers and researchers?

We are told that eighteen workers are needed in the rear to supply one man in the fighting line. I think that more than eighteen are needed. Needed are also the researchers, the scientist and the scholar, the teacher, the poet and the artist, all the cultural workers. Their labor will determine to a large extent whether the soldier's victory will be lost, or whether it shall become a gain to the nation and the beginning of a better world.

OBITUARY

(Continued from page 17)

Governing Board of the Gorgas Memorial Institute. He was a member and Chairman of The Physician's Club of Chicago, the Chicago Society of Internal Medicine, The Chicago Medical Society and the Illinois Medical Society.

Author of many surgical treatises, particularly research and surgical treatment of Thyroid Pathology, Dr. O'Neill was a Founder and Life Member of the American College of Surgeons, and a Fellow of the American Medical Association.

He is survived by his wife, Mrs. Dorothea O'Neill and one son, Dr. Christopher F. O'Neill.

Faculty, and Alumni and the student body of The Chicago Medical School join with the medical world in mourning the loss of this Pioneer in American Medicine.

THE BASIS OF VISCERAL PAIN

(Continued from page 19)

that the pain pathways for the uterine fundus enter the spinal cord via thoracic segments 11 and 12. Pain pathways from the cervix pass over the sacral nerves. That resection of genital nerves does not seriously interfere with the normal cycle indicates that these pathways carry chiefly visceral sensation.

An elaborate experimental analysis of pain pathways is manifestly attended by some unusual obstacles. Aside from clinical therapy, the work is restricted to animals where, one must admit, it is not always possible to tell just what reactions are caused by sensations specifically painful.

In addition, the growing tide of physiological facts has really outstripped contemporary advances in the anatomy of the autonomic nervous system. The reasons for this are found partly in technical difficulties and partly in a tendency to embrace complacently the orthodox pattern for this system as formulated by Gaskell and Langley. Regarding technical difficulties, we have a wealth of literature showing the peripheral distribution of nerves but it has been found that silver techniques which are excellent for the central nervous system are quite unsatisfactory in differentiating nerve fibers in the parenchyma of visceral organs. Even the various Bielschowsky modifications which have been so profitably used are often very misleading because of their selective staining of reticular fibers. Recently, considerable progress has been made in the differential staining of peripheral nerves by several protargol procedures.

Our earlier dogmatic ideas on the central connections and peripheral actions of the autonomic have been seriously shaken. Now it is known that the autonomic is far from independent and is, in fact, represented in the central nervous system all the way to the cerebral cortex. The exact pathways are not as well known as are the somatic but the gaps in our knowledge are being gradually closed by research from several laboratories, notably Ranson's at Northwestern.

The cut and dried action of autonomic fibers at the periphery has now revealed itself highly unstable. We have been accustomed to the idea that either sympathetic or parasympathetic may either be excitatory or inhibitory to smooth muscle or glandular cells and that, almost always, they were opposed to one another in their action; the sympathetic was vasoconstrictor and the parasympathetic vasodilator. Further, if one system was blocked, the effect of the other was expressed. This opposite action has been particularly

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well shown in the control of the diameter of the pupil and small blood vessels.

But now the picture has become more complicated. The sympathetic nervous system, in addition to its standard effects, may normally dilate the blood vessels of skeletal muscle and the meninges. Also, reversal effects are produced by weak faradic stimulation or by the action of minute quantities of adrenalin. For example, vasoconstriction is replaced by vasodilation. Then again, under experimental conditions in which the parasympathetic is either absent or suppressed, the sympathetic causes vasodilation.

Vasodilation itself is a baffling problem but it is of interest here because of the light it may throw upon the peripheral pattern of the autonomic. From evidence to date, it would appear to be possible as a result of (a) passive expansion due to increased hydrostatic pressure exerted from some other point, (b) central inhibition of vasoconstrictor (sympathetic) tone, (c) antidromic reflex action. The last two require nervous action to the vessel itself. From this point, the problem seems to be one of chemistry. Vasodilation is due to muscular relaxation, not contraction—muscle fibers characteristically run transversely in small vessels—so the problem leads into a search for the chemical substance or substances responsible for this muscle relaxation or nerve inhibition. Dale and his school in London have provided the most extensive information on the nature of chemical transmitters at synapses and at nerve endings.

It would seem that, if one searched long enough, he would find some exception to practically every rule concerning the physiology of the autonomic nervous system. Let us now turn to some of the more important anatomical considerations. One group of workers (Stohr, Boeke, etc.) has pointed out that the autonomic differs from the rest of the nervous system in not conforming to the neurone doctrine. Instead of being composed of independent neourones, the autonomic is described as possessing structural continuity in the ganglia and also at the postganglionic terminations where a true nervous syncytium ramifies as a delicate 'periterminal network' about individual cells. Such an arrangement would tempt one to explain the diffuse nature of visceral pain on this structural continuity.

It should be noted here first of all that the picture of the terminal syncytium was gained through extensive use of the Bielschowsky silver techniques. Young ('39) demonstrated localized degeneration of nerves in the cat's adrenal medulla after section of specific nerve segments. Gibson ('40) studied synapses in the superior cervical ganglion of the cat during normal, degenerating and regenerating phases of the preganglionic neurones. He noted the arresting fact that degeneration caused by section of the preganglionic segments occurred only up to the 'boutons terminaux' of those segments and did not include the ganglionic cells which remained intact without loss of responsiveness as shown by normal reactions after preganglionic regeneration. MacFarland and Davenport ('41) were able to stain sharply autonomic fibers down to their simple knoblike endings in the adrenal medulla. In view of the fact that this staining procedure reached down to the limit of microscopic resolution and showed nothing of connecting links between adjacent fibers even in large animals where the endings were visible, it was felt that the case for any type of normal neural syncytium was very weak.

Finally, it can be stated that, although much is still to be learned concerning visceral pain, especially as regards the exact pathways over which pain-producing impulses travel, enough knowledge is at hand to make effective clinical diagnosis and therapy possible. The most up-to-date views hark back to some of the original contributions of the last century when it was held that visceral pain may be of a dual nature; that is, it may be felt in the region of the diseased organ and also in some area at the surface to which it has been referred. It now seems apparent that the vague feature of visceral pain is not due to any structural peculiarity such as a syncytial arrangement of autonomic fibers at the periphery but rather is correlated with the fact that localized pain areas have to be learned by practice. The viscera are not accustomed to receiving pain stimuli; so when the occasion arises, the problem of localization is just as difficult as it is at the surface in the newborn. There is considerable evidence that practice is the main feature which calls for distinction between somatic and visceral pain. Certainly from the standpoint of microscopic anatomy, viscerosensory and somatosensory fibers are indistinguishable from one another.

Now that new technical methods are being employed successfully on the anatomy of the autonomic nervous system, it can be confidently predicted that the correlation of physiological and anatomical data will present a more lucid and probably less complicated picture of the basic facts. If the only casualties during the process are a few of our carefully nurtured terms, then we are twice blessed; for, in addition to a simplified vocabulary, the prevention of untold misery is within our grasp when a precise knowledge of the autonomic pathways is available to the clinician.

BUSINESS NOT AS USUAL

(Continued from page 9)

fessional group, much is expected from us in responsibility and initiative. We must have ordered and organized thought so that by convincing ourselves we shall be able to convince others of the righteousness of our cause. We must and can give courage and cheer to the non-combatant by showing him what his interest in the fight is. It is well known in psychiatry that an understanding of a situation allays panic and fear. Let us apply that generality to the specific situation. Let us help others truly to understand the war and so enable them to conquer fear and panic.

Further, we must realize the applicability of the word "emergency" to us; to many of us this word probably evokes no response, for it is difficult to conceive as we go about our daily life, that we may actually need air-raid alarms. While it is true that the coasts are the most vulnerable spots of our nation, it must also be remembered that anything is possible in war. Who thought Japan could have the colossal effrontery to bomb a United States possession? We must not give aid and comfort to the enemy by allowing him to observe the population of America assuming a lackadaisical attitude toward civilian defense. We must remember anything can happen, and we must be prepared for anything! BUSINESS IS NOT AS USUAL! By realizing the meaning of emergency, by recognizing the civilian function in the war, we serve yet another purpose. We bolster army morale. The soldiers are cognizant of a united, enthusiastic populace behind them, ready to back up their efforts in every way. Every soldier who feels this high pitch of cooperation from the civilian populace is a better soldier. The two groups are synergistic, one influencing the other. We must keep that synergism acting in the right direction.

To implement our effectiveness even more, we must be ever conscious of the possibility of sabotage, both overt and subtle. The presence of the Gary steel mills brings the problem to our very door. The results of direct sabotage in this instance are obvious. But there is another kind of sabotage, equally important, and even more difficult to detect and recognize. I refer to the enemy from within. Here we shall inevitably come face to face with those who are indifferent about defense, who try to nullify our defense, who lend comfort to the enemy. It is only by the fullest participation of the entire civilian population in the war effort that we can rout out the enemy from within and that we can have the guarantee that this war will be won, a complete and democratic victory.

In lending our full support to the war effort through our understanding of the basic facts of the war, and through our intelligent use of this understanding in performing our specific role, we shall do our part in guaranteeing victory for the right. In so doing, we shall have demonstrated those truths which science has long known, that science and democracy are not just desirable goals but are the conditions of survival. We shall have accepted our responsibility to the nation, to the victory program, to our profession, and to ourselves.

BOOKS

(Continued from page 34)

TEXTBOOK OF GENERAL SURGERY, Cole and Ellman, Third Edition, Published by the D. Appleton Century Company.

A careful survey of the present edition, as compared with the two editions which preceded this, shows that the authors have incorporated in this text the recent advances in surgery to a remarkable degree.

From the standpoint of the student, I know of no other work which so concisely and lucidly presents the great variety of subjects treated. As in the previous text, the volume is profusely illustrated. Some of the chapters which have received practically entire revision and additions are those on Acute Hand Infections, Shock and Hemorrhage, Surgical Diseases of the Chest, and the Endocrine Glands.

It is pleasing to note how successfully the authors have overcome the usual gap between periodical publication of newer concepts, and their appearance in textbook. As examples, the subjects of Water and Electrolyte Balance, and the recent use of Plasma and Serum in blood transfusion are handled at length.

This most recent edition should receive as enthusiastic reception as its two predecessors.

I. Edward Bishkow, M.D., F.A.C.S.

THE MARCH OF MEDICINE, New York Academy of Medicine Lectures to the Laity, 1941, Columbia Univ. Press, 1941, 154 pp., $2.00.

This thought provoking collection is the sixth in a series of lectures presented by the Academy of Medicine as a public service. The authors are well known men of culture and science who present the fruits of their "reasoned delving into the causes and results of almost traditional iconoclasms" in medicine, in philosophy, and in the ethical values in human society. They include Dr. Henry E. Sigerist, Dr. Oscar Riddle, Dr. Alan Gregg and several others. Topics range from "Humanism and Science" to "The Promise of Endocrinology". The lay reader will find much of interest within these pages, perhaps more than the physician. The latter, however, will not fail to be impressed with scope of his profession in its broadest view, nor will he fail to ponder the many problems placed squarely before him by the authors.

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